



To promote, develop and support in the spirit of cooperation, the common interests of its members in all matters concerning the development and quality of maritime education and training.

NEWSLETTER

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TRAIN, TRAIN, RETRAIN, RETAIN!



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Editorial

It has been a busy period for your editor. Ten days in Singapore, doing a consultancy linked to the tremendous expansion in Johore and the construction of a large marina. This was followed by a visit to Western Australia, which included a visit to the Challenger TAFE West Australian Maritime Training Centre at Fremantle, accompanied by John Wright of Wrightway Training in the United Kingdom. This in turn was followed by return to Singapore to assist in conducting the four day Maritime Experiential Learning Camp for 100 students from Japan, Korea and Singapore aboard Superstar Gemini on a cruise to Kuantan and Pulau Redong. That was followed by the two day workshop on Melaka, described below and in papers submitted by Capt Richard Teo and Dr Sarat Kumar.

Closing the Gaps

Richard Teo and I have just spent two days at the 'Closing the Gaps Between What is Needed and What is Provided' Workshop, organised by the Akademi Laut Malaysia. It proved a very worthwhile experience, held in a hotel in Melaka. The workshop was attended by some 40 people, comprised mainly of staff and senior cadets from the academy. Also attending were Dr Malek Pourzanji and Prof Paul Hoskin of the Netherlands Maritime Institute of Technology.

After I welcomed the participants and opened the workshop, the keynote address was given by Richard, who addressed the issues described in the following paper. A paper delivered by Capt Sarat Kumar of the Anglo-Eastern Maritime Academy, Karjat, Maharashtra, India is also included.

A strong feature of the workshop was the involvement of the cadets, who identified the gaps and gave suggestions for closing the gaps. They were split into four groups and told to first list the deficiencies they saw and then, on the second day, how to best deal with those deficiencies. They did this extremely well, especially when asked to reduce their findings to just two per group.

Group One was of the opinion that cadets needed more exposure at an early stage to what the industry is all about. There is need for them to be told about what they are getting themselves into – warts and all – and that there be opportunity

for those who didn't like what they were getting themselves into to opt out at an early stage. In addition, it was felt that trainers needed to have comprehensive knowledge of their subject and be able to deliver it in a comprehensive manner.

Group Two was of the opinion that a cross cultural course should be given, also at an early stage. There needed to be greater understanding of the individual beliefs and behaviours, of why they had different responses to issues, what could be expected and of how to handle them. This group saw attitude as key. In addition, there is need to develop and understanding whereby, from Master and Chief down, they were assisted with their studies while at sea.

Group Three was of the opinion that ship managers and owners needed greater commitment to the cadets serving on their ships and acted accordingly. Many cadets felt little more than cheap labour, there to do the routine work of the ship. In addition, there is need to recognise modern training needs by dividing the training period into two periods, eighteen months in academy and eighteen months at sea. This would enable more time to be spent on ensuring that the groundwork subjects were consolidated, and, perhaps more importantly, would enable more study while at sea.

Group Four was of the opinion that the standard of the general selection process be raised. It looked for improved psychometric testing and a more penetrating type of general interview, designed to identify and eliminate unsuitable candidates. The system currently allows too many low flyers in. Those who obtained access and found the industry unsuitable should be able to leave easily. In addition it was felt that many cadets needed clear, updated references to recommended study materials, whether to books or online materials.

Overall the seminar proved extremely worthwhile. It gave me considerable pleasure to see these young people expressing concerns about various aspect of their training and proposing solutions, which will be taken up by the academy.

Rod Short
Executive Secretary

ALAM Workshop 30 Sep, 01 Oct, Melaka



Introduction

Ladies and gentlemen, good morning. Thank you for the opportunity to have this conversation with you today.

You are about to engage yourselves in a very important workshop to identify the Gaps between the STCW Code and what is delivered and practised by the seafarer. This identifying process will question how and why you must change in how you learn, unlearn, relearn, transfer to another in the practice of one of the oldest professions on earth, that of the mariner or seafarer. Our profession has taken a beating for at least the last 2 decades. Criticism and insults have been thrown at the seafarer for our lack of seamanship, skills, knowledge and professional practice. In the efforts to provide for Quality training and Standards, the 1995 amendments to the STCW code provided for Competency Based Learning (Competency Based Education, Training & Assessments –CBETA). Few institutions and Marine Safety Agencies took this on even now after the 2010 (Manila) amendments. Many continue to embrace pedagogy by lectures, top down, pursue rote and then demand candidates to regurgitate, thus privileging examinations that have little or no semblance to competency outcomes that satisfy the standards. This form of delivery is archaic, teacher-centred and quite unsuitable for adults and young adults who have developed certain learning styles that help them perform in their work place.

The Fisher Report (2012) commissioned by the ADB found evidence that contributed to the detriment in quality and standards of mariners. These included the manner in which training and educational programmes were delivered and administered in the Asia Pacific regions. Your role in this workshop is to not only find the gaps but you must also mind the gaps, and in so doing provide for solutions and actions to mend the gaps. To do this you will propose how knowledge pedagogy will move towards andragogy, adult learning methods, with learner centred approaches, collaborative learning, management of learning by trainer and learner, responsibility, accountability and transparency.

All these are integral components of Competency based learning (CBETA) and andragogy.

The Big Disruptor – Competency Based Learning



The model for maritime education in the same way as higher education is changing. The catalyst for change is Competency based learning. This education model is the framework for how all maritime institutions should operate, namely,

1. How institution leaders organise people, faculty & administrators
2. Develop curriculum and package the curriculum with the details of each qualification, with the required knowledge and skills that form the competence standards.
 - a. Learning and assessment strategies are determined and the performance criteria suitably designed in accordance with the rules of evidence
 - b. Assessment tools are designed to ensure the outcomes satisfy the rules of evidence.
3. Learning environments are provided that can fully assimilate with the workplace
4. Award national qualifications that satisfy the STCW code for issuing of the particular or appropriate license
5. Competences are managed at the workplace

Cultural Impediments

Cultural impediments are many. Some are:

1. Traditional teachers/examiners resists change. Reasons are many. Some include
 - a. That was the way the teacher was brought up – **also no longer current**
 - b. Transparency, takes the superiority away from the teacher
 - c. Learner centred approach is thought to make the teacher redundant
 - d. Power-distance dimensions (Hofstede)
2. People have different learning styles. Some prefer being spoon fed
3. Organisational culture – preference to Academic approach
4. Marine Safety Agencies unsupportive or ignorant

Updated efforts so far

We are all aware of the Philippine –EMSA dilemma. It all began by way of the 1995 amendments. Institutions did not have suitable educational frameworks in place, amongst other things, and the administration of CoCs by the Government body. A group of teaching staff from GlobalMET members took part in a July workshop, to identify the gaps. MARINA also took part. A midterm session will be held next week in Manila to consolidate the work. The project team will present their final work and intervention strategy on the 25th November to GlobalMET members and stakeholders. The initial results were published in GlobalMET's newsletter recently. The workshop was funded through the TK Foundation.

This particular workshop identified the units of competences that industry feedback claimed that their employees (officers and cadets) did not have at the workplace. Working from various models of CBL/CBETA, the missing competences were described fully in the Australian Maritime Training Package MAR 13. Based on these findings, the various teams developed learning & assessment strategies to mend the gaps.

Competency

Defining Competency is complex. OECD through PISA (Programme of international student assessment) states that



"A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing upon and mobilising psychosocial resources (including skills and attitudes) in a particular context. For example, "the ability to communicate effectively" is a competency.

Competency education isn't a class room practice or an, add –on program.

Building upon standards (STCW) it is a re-engineering of our education system around learning – a re-engineering designed for success in which failure is not an option.

Finally

Finally I wish all participants a wonderful fun 2 days when you will discover the various shortfalls and devise ways and means to deliver the training to the various grades of CoC and courses. This is only the beginning.

The Next Steps to Take

Competency-based education or competency based learning is such an intuitive and appealing concept that once we consider it, we start wondering, "Why did we wait so long?"

Under this model, students work hard to attain mastery at their own pace rather than being kept in lockstep with a fixed time schedule. Additionally, in a competency-based system, students are enabled to take risks and aim high with their academic

pursuits rather than playing it safe to preserve their grade point average. Following on this, students earn credentials for any competency they master; they're not penalized for attempting things for which they may not yet be ready. Finally, in a competency-based system the faculty coach, mentor and challenge; the students are in the driver's seat setting the direction and speed of their learning.

You will need to refresh your curriculum into a performance based programme with new assessment tools that will measure the performance against specific criteria that are aligned to the standards and competences that satisfy those standards. Your assessments strategies will be in accordance with the rules of evidence. In a sense you will move away from a pure knowledge based learning to one that is knowledge, skills and aptitude/ attitude, (employability skills) flexible, transformational, student or learner centred, for adults paying attention to each student's learning styles, rather than top down. The teacher performs in the role of learning leader, providing guidance and mentorship, whilst coaching learners to attain their competences (singularly or in skills sets) and the desired qualifications.

Teachers and senior afloat staff will need specific teacher/ assessor training to provide the excellence required per the STCW and your national standards for teaching professionals.

By **Capt. Richard Teo**
FNI FCILT MAICD



The GlobalMET Workshop 2014

Maritime Education & Training: Closing the Gap between “What is Needed and What is Provided” Mitigation Strategies & Action Plans

30th September – 1st October 2014 | MELAKA

1

The GlobalMET Workshop 2014

Few challenges facing Global Maritime Education and Training

Are we training our seafarers to adapt to the ever increasing sophistication and automation on board ships?

Are they able to cope up when on-board requirements are moving more and more away from the traditional ‘Hands-on skills’ to ‘Technological Prowess’?

4

The GlobalMET Workshop 2014

“7 Habits of Highly Effective People” - Stephen Covey

Interdependence – As humans, we tend to co-operate with others to achieve something which cannot be achieved independently

Independence – After some time we tend to make our own decisions and start taking care of ourselves

Dependence – When we are born, we rely upon others to take care of us

Team Work

2

The GlobalMET Workshop 2014

Analysis of the “Human Element” factors behind many of the recent Maritime Accidents will indicate

Lack of ‘Professional Ethics’ and ‘Sense of Responsibility’

Loosing track of the ‘Priority of doing things’

5

The GlobalMET Workshop 2014

“7 Habits of Highly Effective People” - Stephen Covey

Be Proactive

Begin with the “End” in mind

Put “First things First” **Learn to Prioritize**

Think Win/ Win

Seek first to Understand, then to be Understood

Synergize and Maximize the effectiveness

Seek ways for Continual Improvement in your abilities

3

The GlobalMET Workshop 2014

Human Factor Elements in Accidents

‘Information Over-load’

‘Lack of Knowledge’

‘Power-gap’ amongst the seniors and juniors

‘Momentary Lapse of Judgment’

‘Complacency’

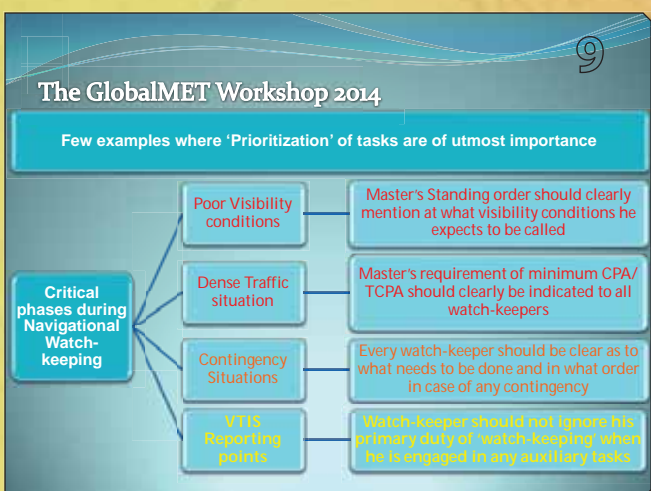
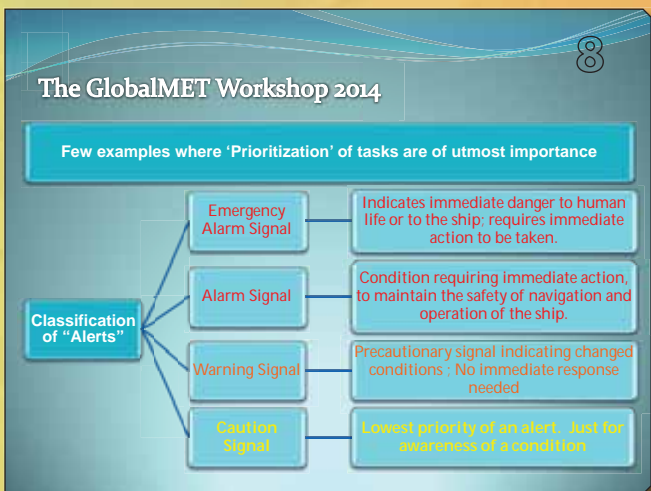
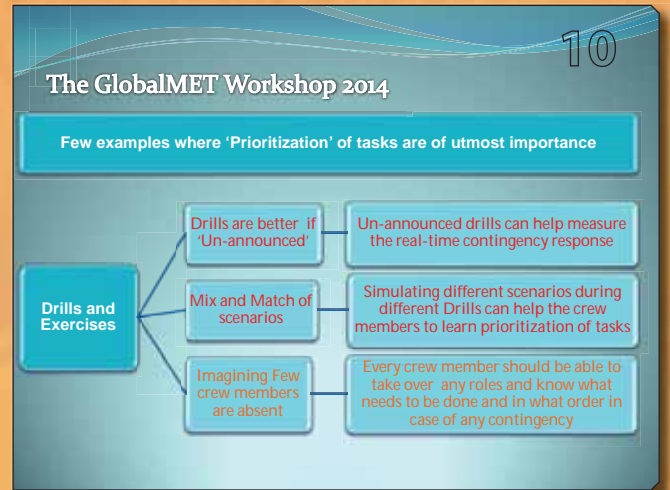
Lack of ‘Prioritization’

6

The GlobalMET Workshop 2014

How do you rank or prioritize the risks?

- Ranking or prioritizing hazards is determining which hazard is the **most serious** and which needs to be **controlled first**.
- Priority is usually established by taking into account the potential for an accident, injury or illness and what effects it can have.
- “Experience” plays an important role in ‘prioritization’ and with less and less mentoring happening on board ships junior ranks at times miss the ‘bigger picture’.



12

The GlobalMET Workshop 2014

Italian economist Vilfredo Pareto in his "Pareto Principle" or the "80/20" rule stated that 80 percent of the value will be contained in only 20 percent of the items;

If we try to apply this rule to our day-to-day workplace situations, it can be stated that only about 20 to 30 percent of our tasks are of that importance, which justifies our immediate attention.

Not being able to prioritize one's tasks can lead to

- ⇒ Critical elements sometimes being overlooked
- ⇒ Precious time being wasted on trivial things
- ⇒ Mistakes being done under Time-pressure and
- ⇒ High stress situations can also lead to burnout over long run and poor execution of work.

Apples Don't Fall Far from the Tree: Can Mobile Applications be of Use in MET



With many of the concerns raised in past GlobalMET newsletters relating to deficient assessment schemes, governance and the like - I had lost a little focus with my real passion of writing articles about technology, education and life-long-learning. The feedback on the newsletter articles about the aforementioned suggests that not everyone shared the views from the newsletter regarding assessment schemes, complacency and such as evident by the very little feedback received. In one real sense, this serves to validate the content of those articles!

Suitably, a former Malaysia Maritime Academy (MMA), Director of Training (DTE), once suggested that if you're not passionate about teaching then you're not going to be a good teacher! I think this speaks volumes, even bears repeating! Maybe that's one of the real problems facing MET (in general) - getting the passion back into teaching and seafaring; Subject matter experts (SMEs) who keep up with the latest information and technology and mentors who pass on the traditions of seafaring! Case in point, I was told during one of my very recent *Proficiency in Survival Craft* practical sessions that the crew is no longer allowed to launch the lifeboat for training with anyone inside and must use a ladder when waterborne or has to contract boat for a high freeboard to take the crew from the gangway to the lifeboat; For the love of seafaring, what have we become?



Figure 1 - Red Delicious Falling Apples

Figure 1, *Red Delicious Falling Apples*—is a symbol of persistent concerns in MET and reminds me of a maxim (fundamental truth) my father used to always say, "...you can't expect an apple to do anything but fall straight down from the tree" and if you're expecting anything else - you're sadly mistaken and in for a big disappointment!

Ever since I've been writing these articles about technology, education and pursuit of the latest technology for the enhancement of the learning experience - ultimate outcomes

have been at the forefront. This article is no different with the introduction of creating mobile applications (apps) that can help to further enhance and enrich the learning experience for staff, student and stakeholders in MET.

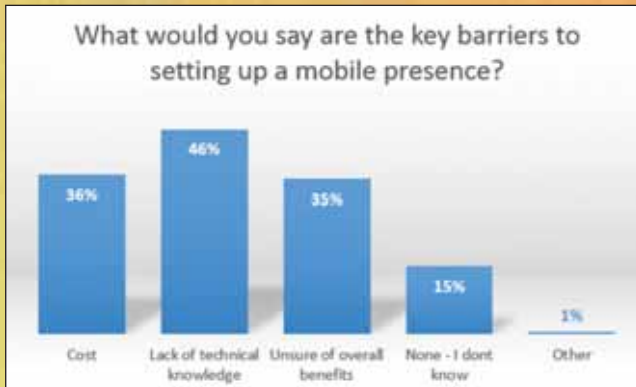
Previous newsletters have made references to learning management systems (LMS), Moodle, Google Apps for Education (GAPE), WIFI and fibre, ICT infrastructure upgrades and anywhere, anytime mobile device usage as tools for enhancing learning in MET. The problem with many of these solutions is that they depend on an extraordinary amount of participation from both management and ICT acting as caretakers for the intended users. If apt attention isn't given to managing the program (e.g., inapt delegation), then program failure shortly follows— if ever really in progress at all! With the introduction of apps to MET; while still somewhat dependant on management as permissions are still required to use institutional systems, e.g., course information, company logos and data— anyone on campus with an interest to do so, a smart phone and maybe a little cash can create highly productive mobile apps for personal, business and MET use. There are free apps, but of course certain extra advantages that one gets with a good paid app outweigh many of the free ones by far, e.g., submission ready apps for application to the Google Play and Apple stores, constant support team presence and numerous tutorial, webinars, blogs and education venues.

Apps can help MET with assessment schemes and lecturer understanding and use of different educational requirements and concepts; an app could be created, e.g., to help simplify access to and reporting of required data. Apps also have the capability to create easy form submission for various required purposes, can help in the tracking of staff work hours (time card linkage), student activities, social media collaboration, SMS, e-commerce and up-to-the minute notification and update availability that can be pushed to the app via smart phone when needed; pretty much if one can think of a requirement or need — an app can probably be developed for it; App development fees can be expensive but this might be considered part of the marketing or advertising budget as apps can help generate many leads, consults and potential revenue streams. A good designed app, while free to download, can get one in the door for consults, call backs and revenue!

There are potentially a great deal of technologies, innovations and opportunities that can be pushed to consumers, MET and industry via an app that MET is missing out on! There are already apps for GPS, celestial navigation and more. An app for Piracy at sea where quick access to critical data could be extremely useful, maybe already created but it's secret; e.g., such an app with database and joint piracy centre data access at one's finger tips, ready SMS capability or other ready forms for quick distress and response calls built into the app to be used while on the move with situation reports and more! Apps can also help solve MET early course registration issues, status, management and classroom activities, marketing of products to customers and much more.

Here are a few numbers for you, there are more than 2,000,000 apps between the Apple store and Google Play and more than 60 billion downloads. The revenues generated are more than \$11.3 billion— equating to more than \$6.2 million per day!

So why don't many college campuses and MET utilize mobile apps as mentioned? Here are some possible reasons:



It has also been noted that app development isn't seemingly on the radar scope of many ICT personnel and that they may even consider such activity as "playing games on the phone" and people at work aren't allowed to play games! If the very people who will lead such technology efforts (ICT and management) see them as playing games, then how is MET to move forward

on such new technologies? According Apps Builder, "Mobile apps aren't just for shopping and gaming, they can also be used to provide utility and connect people to information that matter most in their daily lives... provide up-to-the-minute news to both parents and students, on school happenings and extracurricular activities, and can become a quick reference point for school policies, course calendars and notes."¹

Lastly, according to Apps Builder, there's a potential 50 billion pound reason not to ignore apps anymore², "...customers are increasingly using their smart phones to help find new businesses, compare prices and make purchases. With an average of 5% of all retail sales coming via mobile (The Internet Retailer 2014 Mobile 500 Report) ...businesses who fail to successfully present themselves to a mobile customer are at risk of forgoing a major slice of the pie."²

1 How Schools Are Using Apps to Engage Students, Parents and the Community," Apps Builder. Apps Builder, 2014. Web. 30 Aug. 2014.

2 The £50 billion reason you can't ignore mobile any longer." Apps Builder. Apps Builder, 2014. Web. 30 Aug. 2014.

By **Iman Fiqrie Bin Muhammad** (LCDR, USN ret)
Lecturer, Malaysian Maritime Academy

The Attitude

We often hear in meetings and read in articles that the seamen of a particular nationality show bad attitude or possess a lot of attitude.

In fact, by experience, it has been found that those who do not know their job properly and are unable to perform it effectively, mostly display what we call an attitude.

Out at sea, we do not have any outside assistance to do our work. We need to do it ourselves and, therefore, it clearly follows that we must be reasonably skilled to do such jobs, like, some of us can be good electricians, good machinists, good metal fabricators, good in carpentry etc; and then we will be able to do most of the ship's work.

On one ship, a man came from Germany to fit grabs on our deck cranes. I tried to give him assistance at many stages but he politely declined, except at times when some equipment was to be fetched or hoisted in place. All other jobs, he did by himself and quite happily. I was amazed at his competence to do welding, fixing and connecting electrical wiring etc.

That shows that we must train up our boys and girls in various skills, instead of making them mug up all sort of theories. The IMO must pay attention to this.

In our Marine colleges, we should teach our cadets "Yoga" for good health and for calming the mind. Some simple yogic exercises involving stretching and bending and some correct breathing for 10-15 minutes does a lot of good for the mind and the body.

The trouble with the IMO is that they don't listen to experienced seafarers and they only go by what the governmental functionaries tell them. We are not



criticizing such government officers but it can be easily visualized that many a time they are rather far removed from on the spot realities, both, with regard to personnel and the work.

Now the Christmas season is approaching. A lot of good has been done by The Missions for Seafarers like Stella Maris and Flying Angel and yet we do not allow priests to visit seaman on board when the ship is in port. I believe we should make one more attempt this time when the soft snow falls over the Christmas trees with the hope that they will grant us the favour, failing which, don't you think that they can then be found to be displaying "an attitude".

May God bless us all.

By **Mahendra Singh**
Chief Engineer

Impact and Effectiveness of Behavioural and Human Factors Approaches to Training and Safety



My brief here is to examine how behavioural approaches highlight disadvantages of our present operational culture and prescriptive systems.

The challenges of training and retaining crews on ill equipped small ships covering vast tracts of seas and oceans for months and years at a time have largely gone. Our ships are more complex, have technologically advanced systems and are crewed with better educated people who are aspirational to a much greater degree.

However the maritime culture which evolved due to the need for an extremely hierarchical, command / control based structure has remained. This Command Structure is emphasized by symbolism: insignia, headgear, uniforms, segregated messing, ranks and grades developed over many hundreds of years. It has permeated training methodology and strategy and obviously such an embedded culture is very difficult to change.

Maritime training is a highly regulated process of study, and onboard time and examination delivered through tightly prescribed model courses. One advantage of the marine system is its systematic process, and the fact that cadets have access to experienced mentors in real life working environment. However, other industries are free to teach according to the ability of the candidate and the objectives required, with course times dependent upon ability and objectives being met rather than timetables. They can also react to, and meet, changing situations and technologies quicker.

The problem then is that the world has changed a little faster than our overly prescribed system can cope with. Further we do not have to sustain the hardships of previous seafarers and no longer need to rely upon iron discipline to maintain order. People will respond to, and be motivated more or less strongly by, the following categories from Maslow's Hierarchy of Needs.

- 1) **Self Actualisation:** Creativity, Autonomy, Self Determination
- 2) **Self Esteem:** Achievement, Mastery Recognition Respect, Career
- 3) **Belonging:** Love Friends Family
- 4) **Safety:** Security Freedom from fear, Stability, Wages
- 5) **Physiologically:** Food, Warmth, and Physical Protection

Needs 5 and 4 are easily taken care of nowadays and present few problems.

No, it is Needs 3-1 which drive the quality of many of our subsequent behaviours and it is here where the maritime industry is failing to adapt. People always compromise on Needs of course. Few people really want to work at all as long as they have sufficient resources to buy goods and stay warm, safe and protected. In our society we find certain individuals willing to sacrifice finance to more greatly satisfy their Need 1. For them,

the need for self-actualization is greater than the need for possessions or financial gain. What drives a craftsman to spend months working on one painting, or sculpture: the need for self-actualization: putting something of oneself into an objective. A craftsman cares.

People highlight the need to be in control, feel autonomous and empowered, and gain a sense of belonging on their teams. Generation 'Y' as it is known, is a well-educated, creative, fast-thinking generation who wants the world to respond in faster exciting ways. They have opinions, they want to give their opinions and be heard and rewarded (by respect and autonomy) and they want Wi-Fi!

Our training needs to respond to these needs too. Instead we are faced with prescriptive IMO Model Courses of 40, 80 or 100 hours no matter what the educational ability is of our cadets or employees. Our training regime is as authoritarian inflexible and prescriptive as our operations.

Why do I believe that we need to change? Very simply fear of authority is a barrier to 'self-motivation' and effective performance. Let's look at the below case study in the aviation industry: <http://www.reuters.com/article/2014/02/10/us-asiana-culture-idUSBREA1906U20140210>

South Korea's Asiana Airlines Inc. is changing its pilot training program and encouraging its crew to talk more in a bid to change a corporate culture..... A hearing into the July 6 2010 crash revealed that one of the pilots said '*he did not feel he had the authority to abort a low-speed landing as people at a "higher level" had to make that decision.*' "It's a reality that within our country there is a leaning toward a patriarchal culture and many pilots work and fly within the strict military order,". The concept of retraining was later expanded into what is known today as Crew Resource Management.

Has the Marine Industry accepted the need to address the issue of Behaviour? Not quite yet!

Gary Hartland, '*Behavioural Safety in The Marine Sector*' QSE Maritime Consultancy Services, describes how the marine industry is still vulnerable to safety liabilities and is unable yet to break the mould of authoritarianism despite advances in Crew Resource Management initiatives. My contention here is that CRM is handled with the same cultural preference for authority and prescription which is counter to the culture required for such teamwork. Hartland recognizes that the industry simply does not empower its individuals: empowerment is Maslow's important 'Need no 1'!

Consider now, 'Near Miss' reporting, (where potential incidents are reported in addition to actual incidents), in terms of the autocratic, hierarchical organisation of the on board marine structure. A 'junior' employee is being asked to report to a

crusty Master or Chief Engineer that he nearly had an accident! Are we mad? Who in their right minds would admit a possible costly accident was narrowly avoided. Reporting near misses is now seen as vital to preventing actual incidents, but it *breaks all the known cultural issues normally associated with authoritarian regimes*. Authoritarianism offers a potentially huge barrier safe behaviour. How many incidents are caused by 'junior' officers being unwilling to wake up or alert the Master?

Other industries have shown that we must give personal responsibility, interactive training, and relentless support to 'Team members' who should to be dedicated to **the achievement of a goal**, not the minimum occupation of blindly following regulations. By including people in the team, they

understand their worth and responsibility and that may help to better fulfil their personal Hierarchy of Needs.

The phrase 'It's always been done that way' is the greatest barrier to progress.

Douglas Smith is Training Director of Uniteam Training in Myanmar. He graduated from Stirling University, with English Literature, Psychology and Sociology. He is a qualified Teacher, Assessor and Verifier, having worked in the oilfield for 12 years before entering the field of Training. He was previously Fleet Training manager for a fleet of 17 FPSOs and has seen both sides of the marine and offshore oilfield industries.

By **Douglas Smith**



Image courtesy DNV GL

DNV GL's Short Sea Ship of the Future is Unmanned

World's largest classification society DNV GL has released details of a new concept ship design for the short sea shipping market which is battery powered, highly efficient, and, you guessed it, unmanned.

Details of the "ReVolt" concept were released this week at SMM Hamburg, one of the world's leading maritime trade fairs. DNV GL says the ReVolt is a vessel that is greener, smarter and safer than conventionally fueled and operated vessels, offering a possible solution to the growing needs of marine transport.

Instead of using diesel fuel or even LNG, ReVolt is fully powered by a 3000 kWh battery, thus reducing operating costs by minimizing the number of high maintenance parts such as rotational components. DNV GL says that, at least in concept, the vessel has a range of 100 nautical miles before a recharge is needed and if the energy required is harnessed from renewable sources, this would eliminate carbon dioxide emissions.

The ReVolt could achieve even greater efficiency by slowing to an average operating speed 6 knots, leading to less water resistance compared to traditional vessels, which usually travel at about 8.7 knots, DNV GL says. The slower speed allowed DNV GL engineers to fit the concept with a straight vertical bow, further reducing water resistance along the ship's entire profile and ultimately saving energy.

In order to tackle one of the shipping industries' "weakest links", safety will be enhanced through an autonomous navigation system that requires no crew, and therefore eliminates the risk of human error and makes the concept more cost-efficient to operate. DNV GL says that with an average of 900 fatalities per year, the mortality rate in shipping is 90 percent higher than in comparable land-based industries, primarily due to the human factor when it comes to accidents.

With no crew, there is also no need for crew facilities such as the superstructure, DNV GL says. This results in an increase in loading capacity and low operating and maintenance costs. Compared to a diesel-run ship, DNV GL says that ReVolt could save up to 34 Million USD during its estimated 30-year-life-time.

DNV GL notes that while the ReVolt concept ship is currently still being tested and will not be built until all the required technologies have matured, it should serve as example of what is conceivably possibly given today's technology and what could also be in store for the future.

"Building and operating this vessel would be possible with today's technology," says Hans Anton Tvette, Senior Researcher at DNV GL. "ReVolt' is intended to serve as inspiration for equipment makers, ship yards and ship owners to develop new solutions on the path to a safe and sustainable future."

By **MIKE SCHULER**

The U.S. Just Created the World's Largest Marine Reserve in the Pacific



President Obama on Thursday signed a proclamation designating the world's largest marine reserve and declaring it completely off limits to commercial fishing and mining.

The proclamation expands the existing Pacific Remote Islands Marine National Monument to six times its current size, resulting in 490,000 square miles (about 390,000 square nautical miles) of protected environment around tropical islands and atolls in the south-central Pacific Ocean. At that size, it is now the largest protected area on the planet, land or sea. The protected area encompasses the seven islands and reefs of Wake, Johnston, Baker, Howland, Kingman, Jarvis and Palmyra, as well as the ocean around them.

For comparison, the Great Barrier Reef Marine Park covers an area of about 214,000 square miles.

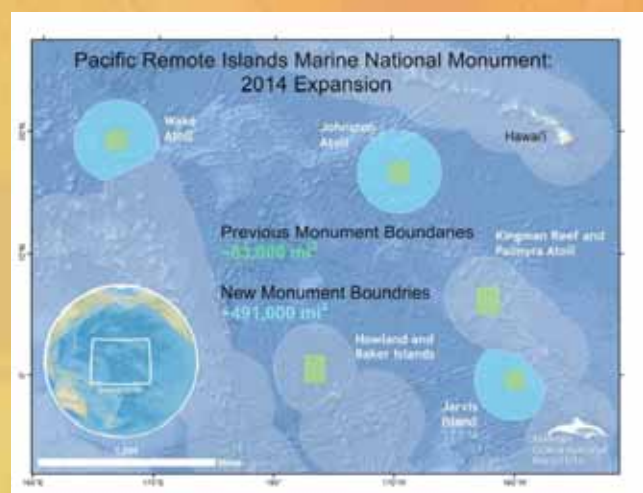
The President and his administration identified expanding the Pacific Remote Islands Marine National Monument as an area of particular interest for protection because science has shown that large marine protected areas can help rebuild biodiversity, support fish populations, and improve overall ecosystem resilience. In choosing the area, the Administration examined how to expand protections near the Monument and considered input of fishermen, scientists, conservation experts, elected officials, and other stakeholders, which included a town hall meeting and over 170,000 comments submitted electronically.

The expanded Monument will include over 130 newly protected sea mounts, which are hotspots of biodiversity and are particularly vulnerable to the impacts of climate change. The expansion is expected to better protect the delicate habitat, which includes sea turtles, marine mammals, manta rays and coral. The Monument is also home to millions of seabirds.

The proclamation expands the Monuments from 83,000 square miles to 490,000 square miles. Photo credit: Wikimedia Commons

In June, President Obama launched a series of executive actions to increase protections for the ocean, including combating black market fishing, establishing a pathway to new marine sanctuaries, and understanding the impacts of ocean acidification.

The expanded monument will continue to be managed by the Departments of the Interior and Commerce through the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration respectively.



Map courtesy Marine Conservatory Institute

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