

EVALUATION, ASSESSMENT, AND TESTING IN MARITIME ENGLISH: MEASURING STUDENTS' COMPETENCE AND PERFORMANCE

(MarTEL-Maritime Test of English Language)

Capt. Taner ALBAYRAK & Prof. Dr. Reza ZIARATI

Capt. Taner ALBAYRAK
TUDEV/Piri Reis University,
Tuzla İstasyon Mah.,Hacıoğlu
Sok., 34940.Tuzla, İstanbul,TR
Tel: 0216 581 00 30 Fax: 0216
446 70 05
e-mail : albayrakt@yahoo.com

Prof.Dr. Reza Ziarati
TUDEV/Piri Reis University,
Tuzla İstasyon Mah.,Hacıoğlu
Sok., 34940.Tuzla, İstanbul,TR
Tel: 0216 447 00 79 Fax: 0216
446 70 05
e-mail : rziarati@tudevedu.tr

Abstract

Research has shown that the weakest link in Maritime Education and Training (MET) is the identification of the communication problems due to lack of standards for Maritime English. Communication failures have caused many accidents and incidents in the past. There have been many attempts to reduce communication failures and improve both the content and delivery of Maritime English. A recent EU Leonardo Project MarEng considered a great success in enhancing the current efforts in improving content and delivery of English Courses by MET providers. However, there are no international or European standards yet for the evaluation, assessment and testing in Maritime English to measure students' competence and performance in this very important subject.

To address this deficiency, MarEdu (TUDEV–CFF Partnership) with support from several EU member states as well as Norway instigated a major Leonardo Project known as MarTEL (Maritime Test of English Language) in 2007. The first phase of the project is near completion and final report to EU is expected in October 2009. MarTEL is expected to be a unique solution to improving the Maritime English competency of seafarers. MarTEL solution contains a series of study units supplemented by a set of tests in Maritime English. Pilot studies on MarTEL have shown to motivate cadets to learn English as MarTEL study units encourage learning English in the context of the maritime profession. This new and standardized method of delivery and assessment of Maritime English competency is expected to reduce the extremely high percentage number of accidents and incidents at sea and in ports, and save many lives.

Key Words: Maritime English, Testing, Study Units, EU Leonardo Programme

1. Introduction

Shipping is perhaps the most international of the entire world's great industries and some of the most dangerous. Safety of life at sea, the marine environment and over 80% of the world's trade depends on the professionalism and competence of seafarers. It has been reported that the over 80% of accident and incidents are due to human error. According to IMO (2005), 80% of accidents at sea are caused by human error. One of main causes of accidents and incidents are due to poor standards of maritime English. The language of the sea is Maritime English and many ships, and to a lesser extent, ports, are manned by multinational crews. Hence, good communication in Maritime English is essential for creation and maintenance of effective working environments and safety of the crew, and generally safety at sea and at ports. There are many reports and papers (MCA –MSC 82/15/02 and MSC 82/15/03, Ziarati, 2006) identifying poor communication as one of the most significant factors in accidents at sea and at ports. There were several attempts to overcome this important issue; however EU wide standards to be employed by all MET institutions are still need to be developed.

The importance of skills in English Language competency was highlighted at the recent IMO Maritime Safety Committee (IMO MSC 82, 2006). Papers presented by the Turkish and UK delegates clearly stated that language competency is a problem. The papers led to discussions at the Human Element Working Group (HEWG) when it was reported that many seafarers have problems in expressing themselves in English and in using maritime terminologies. It was agreed that STCW Convention had to be revised in this connection and IMO's maritime English course model's (based on SMCP) minimum requirements is no longer acceptable. The inadequacy of Maritime English standards has been a major contributory factor in causes of accidents, some involving loss of life, large numbers of injuries and extensive financial loss (Deniz Ticareti, 2006; MAIB, 2006).

The MarTEL project is in line with Loginovsky (2002) which reports on the significance of English as the working language of the international shipping industry and that the overall performance and safety of the international fleet depends on the skill to apply it correctly. He states that the ability of a non-native speaker to have a good command in Maritime English is very much influenced by the ability to think in it in the frame work of the maritime profession. He concludes that to make the teaching and learning processes more effective, it is required to power up the thought activity of a seafarer using English. This project has taken note of the recent papers at the IMO MSC event (2006) and recommendations of several international papers (Ziarati, 2006; Loginovsky, 2002) concerning lack of standards or and appropriate underpinning knowledge and skill for maritime English.

Considering the severe shortages of personnel with sea going experience (Ziarati, 2003; Pourzanjani et al, 2002, Schroder et al, 2004) which is expected to get worse shortly (IER, 2005 report sponsored by ISF and BIMCO), the need for the better qualified seafarers with enhanced English language communication skills is expected to become most important human element issue for shipping companies in the near future who are desperately seeking seafarers to run their vessels safely and efficiently.

2. The Birth of MarTEL

A transnational project team composed of some eight European countries, funded through the EU Leonardo programme, was established to identify the need for such standards. The work of the transnational team leads to development of a proposal known as MarTEL (Martime Test of English Language). The project was submitted to the National Agency responsible for coordinating the work of Leonardo programme in the UK. The project was subsequently approved with a budget of 400000EUR to conclude the work of the MarTEL project team.

MarTEL aims to address major problems relating to competency in maritime English for the well-being of seafarers and those working in the shipping and maritime industries including ports. The problem is addressed at its very roots, that is, helping to improve the language competency of those wishing to embark on a career in the Merchant Navy as rating and officers in partner countries at three key stages: 17/18 years old, 21/22 years old and 23+ through an integrated and interrelated standardised assessment system catering for all classes of seafarer as outlined in the project summary. The project is concerned with the establishment of standards of Maritime English for all classes of seafarers and for those working at ports. The standards are expected to be recognised by international professional bodies and the licensing authorities. To ensure these developments are implemented effectively it is proposed:

- to develop supporting training programmes for the intended standards by formation of pilot groups initially in one of the partner countries and then re-run them and/or validate them in other partner countries,
- to establish a network of transnational partners to support the development of the project, to surpass excel the minimum of standard of maritime English set by IMO,
- to design a programme for the trainers and assessors development, and their certification, for application of the intended standards and subsequent tests, as well as for the internal assessment and verification process, in line with European vocational qualifications for Assessors and Verifiers,
- to facilitate secondment of trainers and assessors to partners' establishments on short assignments in order to familiarise the trainers and assessors with the necessary skills and good practice,
- to form a committee to monitor the progress and make the necessary changes when required, applying a quality manual instigated in the course of developing this project, and
- to develop bridges for maritime personnel, through these standards so that they can take advantage of other programmes, some leading to higher vocational qualifications.

All tests for officer and senior officer levels will have weight on different skills. The officers are expected to reach certain levels of proficiency and competency at given ranks/duties by their companies or potential employers.

3. Transfer of Innovation

The current practice in many non-English speaking European member countries as well as countries outside Europe is that institutions involved with education of seafarers provide either short course programmes in English for industry or develop six months to one year English preparation programmes for cadet officers prior to commencement of the main education programme. Every year thousands of cadet officers come to the UK, through various schemes and pathways, and enrol on various merchant navy education and training programmes for different classes of seafarers. For instance, in some colleges these cadets are sent on 6-months general English courses prior to the admission onto merchant navy programmes. In Turkey, for example, generally all officer cadets undergo one year of English preparation. Review of the arrangements for other European countries for training of English seafarers clearly indicates that there are no standards of competence and the actual period of education and training in English language is also different in different countries for given classes of seafarers. Often these programmes irrespective of type or level, particularly those concerning cadet officers, are not related to the vocation of seafaring and are grammar based (TOEFL, IALTS, etc). MarTEL will establish given standards for all classes of seafarers. The partners in this consortium would wish the contracting organisation to take a lead in realisation of the project aims. The UK partners and the silent partners (see www.mardeu.co.uk) would also benefit immensely by standardising the English tests for each and every class of seafarer so that thousands of overseas students coming to the UK (who incidentally in the majority of cases will eventually work for European based shipping companies) would achieve a common standard in English competency prior to commencing their main programme of study and training.

The establishment of standards is expected to help partners to set up test centres offering a valuable and profitable operation at their own institution benefiting professionally and financially from such an undertaking. One innovative aspect of the proposed project is that two standards will be offered at elementary and intermediate levels which could be used for industrial updating of existing seafarers employed in ship operation companies at the elementary and intermediate levels.

One other innovative feature is that the standards are intended to be skill based, and each standard will be provided with a sample unit of a study. The unit of study is an attempt to provide the necessary learning and training support for candidates aiming for a particular merchant navy qualification, and hence, a given standard of maritime English.

4. Benefactors

4.1. Target Group

MarTEL is a maritime language competency assessment programme for the language certification of main target groups outlined in the project summary.

The language preparation programmes in EU member states for education and training of seafarers is not standardised, neither in terms of level or duration of study. For cadet officers, the initial English preparation programme, the duration could range from one to three years, and the examination standards are often set at a local level. Some institutions use standards such as TOEFL and IALTS which are not designed for students following a vocational programme. There are many cases where IMO requirements are integrated within a degree programme at a university. Again in many cases, the examination is not based on European or international standards, and if standards are applied these are of the type mentioned earlier. In all cases reviewed, the English programmes are the same for all classes of seafarers. Hence, the existing arrangements do not differentiate between the language skills requirement of different classes of seafarers. Furthermore, the level of competency varies significantly in across institutions in a given country and this even more inconsistent across the EU. In the majority of cases English preparation programmes are grammar based in order to satisfy the need of standards such as TOEFL and IALTS. A distinction has been made between the English requirements, say for a deck officer of watch and that needed for an engineering officer of watch. The intended standards are also underpinned by a sample unit of study to encourage vocational reference and ensure the programmes that support these standards focus on skills as well as grammar. The unit of study for each class of seafarer would also set the scene for maintenance of standards in the future and act as a guideline for development of training/learning/testing material.

In non-English speaking countries, many seafarers, especially at below officer levels, have serious problems with English language. To this end, two of the standards of the foundation standards (elementary and intermediate) can be used to target this particular group. The standards are being designed so that industry could use them to assess the competence of their employees at particular standards proposed.

4.2. Potential Users

Potential users will be lower and upper secondary school leavers, 'lycee/lise' cadets, young unemployed and all those employed in the water transportation industries (all ratings, officers and above, deck as well as engineering) as well as all education and training centres concerned with the formation of Merchant Navy personnel.

There is no standardised maritime English testing system in Europe. The level of English competence among merchant navy officers is inconsistent. The experience of running merchant navy officer programmes by the partners has indicated major language deficiencies and inconsistency. This has been acknowledged by the many EU member state delegation to IMO. Poor comprehension has been a major cause of accidents and incidents at sea and ports as reported in several European accident analysis reports (Deniz Ticareti, 2005) and IMO's accident analysis reports.

As mentioned earlier, one of the main reasons for the intended standards is that shipping companies and organisations could use them to assess the competence of their employees

at a particular standard proposed. To this end, all personnel working in the maritime industry could benefit from these standards as specific tests for specific vocational requirements for different ranks of seafarers.

Every year thousands of cadets enrol on various education and training programmes to follow a career in merchant navy. The largest user group are the cadet officers studying/training becoming a officer of watch either as a Deck officer or An Engineering. The advanced foundation tests could be used to standardise the level of competency for both engineering and deck cadet officers before enrolling on their main programme. The tests are designed to ensure that, if successful, the cadets have reached the required level of competency for progression onto the main programme of study. Later in their career, they can take advantage of the tests designed for senior officer for progression to higher ranks, working at sea or at ports.

4.3. Pilot tests and teaching material

Up to now teaching material and tests for all three levels were completed. In the preparation of teaching material BTEC standard format was used to comply with other teaching units for the inclusion in the approved BTEC/EDEXCEL Programmes. Summary of each phase is as follows:

Phase I: To create a test that assesses the English Language Proficiency level of a candidate cadet who wishes to enter a Maritime Academy or a Training Center which aims to educate its cadets with well established English Language skills and comprehensive Maritime English.

Bases for the phase I are; TOEFL Structure, Authentic Material, Maritime Vocabulary, Scientific Terminology and Real World Requirements.

The Formation of Phase I Test (Upper Intermediate);

STRUCTURE: 25 questions, all with multiple choice answers, 25 minutes duration, 20% assessment weight ratio.

READING: 3 written paragraphs followed by 5 questions each, all with multiple choice answers, 20 minutes duration, 20% assessment weight ratio.

LISTENING: 2 voice recorded conversations followed by 4 questions each, 2 voice recorded passages followed by 5 questions each, all with multiple choice answers, 30 minutes duration, 25% assessment weight ratio.

SPEAKING: 2 written questions followed by spoken answers, 2 written passages with voiced recorded conversations and each followed by 1 or 2 spoken answers, 1 voice recorded passage followed with a spoken answer, 20 minutes duration, 20% assessment weight ratio.

WRITING: 2 written passages followed by 1 written question each, written down answers, 40 minutes duration, 15% weight ratio.

Phase II /III:

SMCP Proficiency: Standard Communication Rules Test in one part, 15 questions, 20 minutes duration, 25% of the full score.

Reading Skill: Written reports/messages/passages in two(2) parts, a total of fourteen(14) questions, 35 minutes duration, 15% of the full score.

Listening Skill: Recorded situations and questions, 15 questions, 25 minutes, 25% of the total score.

Speaking Skill: Recorded questions/situations given and an oral response for each is expected, 15 questions, 25 minutes, 25% of the total score.

Writing Skill: Written situations given in two parts and the test taker is expected to construct a written report/letter/message on the given situation, 40 minutes duration, 10 % of the full score.

Study Guidelines:

Part I, The Introduction: Gives the rationale for the test and describes the approach of the test. States basics for the Study Units.

Part II, The Language Skills: Examines the needs for each skill in the light of the test. Describes “LFA” approach for preparing the Study Units.

Part III, The Curriculum: Lists topics and sub-topics of Maritime English curriculum applied in TUDEV and their relation to the language skills.

5. E-Learning and assessment

The experience of various partners in maritime education and training and most of them in English language training has provided an added value to the existing efforts in partner countries. The fact that the standards and the study units underpinning them can also be used as a means of self-learning and self-assessment which would provide an added value to widen the demand for the standard in the intended target groups. The partnership intends to seriously support the development of e-learning and e-assessment which has been assigned to two leading partners involved in such developments. This is expected to increase the existing interest in the project and its dissemination. The partnership is convinced that the intended plans to link the e-platforms (or one single integrated one) to the website and Internet portals holding the test materials and provides the connection to other databases would substantially enhance the possibility of wider audience within the stated target groups. This project would not have been possible without the support from the Leonardo programme. This programme has motivated the partners to come together in a worthy cause and innovatively transfer the existing knowledge and know-how, being developed simultaneously with recent and current Leonardo projects (SOS, 2005-07 and E-GMDSS, 2006-08).

6. Co-operation with MarEng and MarEng Plus Projects

The web-based maritime English learning tool MarEng was finished in the spring 2007 as a result of a transnational Leonardo da Vinci project MarEng with the aim of promoting the maritime English language competences of those working in the various maritime professions in Europe.

MarEng brings together sixteen Partners from six EU Member States: Belgium, Finland, Latvia, Poland, Spain and the United Kingdom. The Partner group consists of a wide

variety of maritime institutions, and involved in the project are education and maritime experts such as English teachers, researchers, training managers, seafaring professionals and representatives of the maritime industries.

Encouraged by the huge feedback and enormous interest generated by the MarEng Learning Tool, the project partners were eager to improve and add new features to the tool and thus decided to embark upon the MarEng Plus Project involving the creation of a new elementary level in addition to the previous intermediate and advanced levels, the addition of two new topics, the creation of a teacher's manual and the transfer of the MarEng Glossary of maritime terms into a mobile phone environment.

The partner group of MarEng Plus also consists of a wide variety of maritime institutions, and involved in the project are education and maritime experts such as English teachers, researchers, training managers, seafaring professionals and representatives of the maritime industry.

The existing MarEng Learning Tool consists of intermediate and advanced level learning material on different maritime topics. The material is based on an idea of a virtual vessel that during its journey encounters different language usage situations in port and on board.

The aim of creating new material into the MarEng Learning Tool is to widen the user base of the Tool. As a result of the MarEng Plus project, two new topics, as well as elementary level learning material and a Teacher's manual, will be added in the Tool.

Based on the feedback received the tool is missing some relevant content. All over the world more attention is given to issues related to security and the environment and the same goes with maritime sector. Therefore the new MarEng Plus project will work to create new material under the themes of transport security and the environment.

The feedback has also revealed that the lower level English learners are in the need of a (beginner) elementary level as the MarEng learning tool currently consists of only intermediate and advanced levels. Teachers using the MarEng tool see that their teaching process could be made more efficient by creating a teacher's manual. Therefore, creating of elementary level and a teacher's manual will be a part of the project.

As the maritime workers in particular are very mobile, it is also appropriate to find solutions to transfer the MarEng learning tool into the mobile learning environment. Therefore the project will transfer the MarEng maritime glossary into a form that can be utilised in a mobile phone even if the phone is out of network connection. All the project activities will be performed by a partner group that represents several European Union countries some of the partners being the same as in the previous MarEng project. Partners' wide background in shipping industry and maritime English teaching gives a strong basis for the project success.

In 2008 TUDEV became advisory partner of Leonardo Project MarEng Plus. This has provided a great opportunity for MarTEL and MarEgn Plus to establish close coordination and cooperation. During the last partner meeting of MarEng Plus in May 2009, partners agreed to consider closer co-operation between two projects for joint valorization and dissemination. Considering the number of partners in both projects (32 in total), this will be an historical event if the two project groups come together.

Both projects foresee a strong and wide impact by disseminating the outcomes all over the world to all different kinds of users. As a result of the projects the material will be transferred to new user groups and geographical areas. The new material will not only widen the overall user group but also motivate lower level learners to learn maritime English.

In addition, the increasing co-operation between the EU and its surrounding areas will create the need for the improved knowledge of English among the countries of different linguistic backgrounds.

6. Conclusions

The notion of having standards in English language is not new, however, establishing standards for maritime English should be considered innovative. Developing standards for each class of seafarer and targeting skill/competencies needed for each class underpinned by a unit of study which could be used as a guideline and a benchmark for improving existing English preparation programmes or developing new ones. All current partners have been involved with development of preparatory English programmes for cadet officers and some have been involved in general English programmes for undergraduates as well as post-graduate students and three have been developing and running short Maritime English Programmes for industry. Several silent partners are either an awarding body or are associated with an awarding body accrediting existing conventional English preparatory programme, ranging from 3 to 6 months of study. Some have been offering short English programmes for industrial updating and for remedial purposes.

The rapid prototyping method for development of standards should also be considered innovative. The content of tests is relying on existing material as well as material on general English language training for standards such as TOEFL and IALTS, although the theoretical aspects of these tests will be replaced by vocational and skills-based content. IMO also has extensive range of material on maritime English (SMCP) which is being incorporated in the underpinning study unit for the intermediate standard. The standards and the associated study units, not only would be useful to partners, but also to the contracting organisation which is one of the leaders in the maritime education partnership MarEdu (www.mardedu.co.uk). The MarEdu partnership began as a result of the Leonardo project (SOS, 2005-07), involving three of the partners in the existing consortium. The partnership is composed of the leading nautical colleges in several European countries. The MarEdu membership is supportive of the proposed projects and intends to promote the MarTEL standards.

There is definite need for these standards and there is a huge market for them. The establishment of test centres and the provision of testing services are expected to lead to saving lives, reducing injuries and minimising financial losses.

7. An invitation

The intention of standardising and harmonising the process of testing for maritime English language competency cannot happen without active support from representatives of maritime education and training providers and the wider maritime community.

Piri Reis University would wish to invite all academics and industrialists participating at this conference to join the project team and help to respond to the identified and the compelling need to promote a high level of working maritime English language skills throughout the EU's shipping industry.



Prof. Dr.Reza Ziarati (BSc (Eng) PhD(Eng) CertEd FIEE FIMechE FIMarEST CEng) is the Principal of Institute of Maritime Studies, Turkey, Executive Director of Centre for Factories of the Future, UK, and PhD Supervisor of Several Programmes, Oxford Brookes University, UK. He previously served as Director of Oxford Brookes University/Dogus Institute, Istanbul, Turkey, Dean of Faculty of Sciences, Head of Department of Computer Engineering and Pro Vice Chancellor (External Relations) of Dogus

University, Executive Director of Centre for Factories of the Future, External Examiner for higher degrees, degrees and BTEC/Edexcel programmes. He holds a number of directorships and industrial professorships. Chaired and participated in a number of international consortiums, conferences, business programmes and industrial partnerships. He has over 80 major papers and/or articles and awarded a number of national and international prizes.



Captain Taner ALBAYRAK (BA (Int. Relations), MA (Management), PhD (Maritime Management-ongoing), AIMarEST, is Dep. Head Navigation Engineering Department TUDEV, EU Projects Coordinator and Board Member of Seafarers Examination Centre. He is graduate of Naval Academy and Naval War College and qualified as a line officer (both deck and engineering). He served in Turkish Navy mostly in operations and education and training management duties at different ranks and seniority and served as captain of a frigate and Commodore of a naval division. He also served in NATO Headquarters and several UN Peacekeeping Missions. Recent activities include project coordination and management, organization and chairmanship of conferences, seminars and delivery of lectures and press conferences to national and international media at various levels.

6. References

1. Ziarati, R., “A report on IMO MSC 82 to IMarEST”, for consideration to Technical Affairs Committee, IMarEST news, 2007
2. Ziarati, R., “Safety At Sea – Applying Pareto Analysis”, Proceedings of World Maritime Technology Conference (WMTC 06), Queen Elizabeth Conference Centre, 2006.
3. IMO (2005), cited in www.imo.org/ and www.itu.edu/new/acad/tuzla/safety)
4. Ozhusrev, T. E., Uzun, S., and , Ziarati, R., “Generic Remote Communication Systems for the Factories of the Future”, Proceedings of ICCTA 2003, IEEE, Alexandria, Egypt
5. IMO, ‘Casualty Statistics and Investigations – Very Serious and Serious Casualties for the 2001’, February 2004.
6. R Ziarati, ‘Maritime and Training – A way forward’, confidential report to Turkish Maritime Education Foundation, July 2003.
7. IMO, ‘sub-committee minutes’, 12th session, 2004 (and 13.01.2005, [www.imo.org/human element](http://www.imo.org/human%20element) and www.itu.edu/new/acad/tuzla/safety)
8. S Torkel, cited in Turkish Shipping World, ISSN. 1301-5907 October 2004.
9. NTNU Report, ‘Training in risk prevention and vessel safety for the coastal fishing sector’, Community Vocational Training Action Programme (1995-1999) NORAY – Contract no. E/99/1/061291/PI/I.1.1.b/FPI.
10. R Ziarati, ‘Safety On Sea (SOS)’, Leonardo Project 2005-2007, No: TR/05/B/P/PP/178 001.
11. UK Department for Education and Employment Report, ‘EUROTECNET, 37 - Factory of the Future – Development of Human Resources’ Vocational Training & Innovation in Europe, EUROTECNET Project Case Studies, 1995.
12. Videotel, ‘The Importance of on Board Training and Assessment under STCW ’95’, Videotel Productions, 2001.
13. V A Loginovsky, ‘Verbal Communication Failures and Safety at Sea’, Vol. 2, No.2, December 2002.
14. Pourzanjani et al, ‘Maritime Education and Training (MET) in the European Union: How Can Maritime Administrations Support MET’, Vol.2, No. 2 IAMU Journal, December 2002.
15. Schröder et al, ‘The Thematic Network on Maritime Education, Training Mobility of Seafarers (METNET): The Final Outcomes’, Vol. 3, No. 1, June 2002.
16. Zade et al, 2002, ‘Maritime Education and Training (MET) in the European Union: How Can Maritime Administrations Support MET’, Vol.2, No. 2 IAMU Journal, December 2002.