



COMPETENCY-BASED APPROACH TO MARITIME ENGINEERING ENGLISH TEACHING

Oleksandra Litikova

PhD, Associate Professor

*Department of English Language in Marine Engineering
Kherson State Maritime Academy*

Abstract

The paper encourages the management in process of competency-based integrated Engineering Maritime English course teaching by means of well proven communicative method priorities use.

Key words: competency-based approach, communicative method, integrated course.

Introduction. We must confess that sometimes getting of educational certificates by our graduates - future seafarers - doesn't guarantee availability of correspondent to their occupation professional skills. These skills are of utmost importance to ensure safe running of the ship equipment and survival at sea. Otherwise, lack of critical competencies leads to unintentional carelessness and even criminal negligence on the working place and the consequences may range from ridiculous to striking.

To enhance sufficient professional training of future seafarers in 2013 in KSMA was provided besides communicative learning of English also a competency-based approach.

So **the intent** of my paper is to encourage the use of well proven communicative method use in teaching maritime English in a competency-based integrated learning. This hopefully will give cadets the chance to develop and form not only communicative skills in listening, speaking, reading and writing in professional sphere but also will facilitate the formation of important professional skills by means of English language.

Materials and Methods. Analysis of theoretical sources on competency-based learning [1; 2; 6] gives a possibility to consider it as a process of learning,

developing and forming of concrete skills unlike to abstract learning, it's necessary to underline its extremely fine grained nature. It means learners move gradually from one mastered competence to the next in order to gain a larger learning goal. In case of reasonable teaching management each competence corresponds to a certain necessary set of individual skills, which together constitute a common learning outcome.

For example, the process of learning to drive manual transmission might first have to demonstrate their mastery of such competences, as rules of the road, safety, defensive driving, and parallel parking. Based on these competences, manual transmission competence will be focused on the following independent skills: using the clutch, brake with right foot, shifting up and down, over-arching (from full stop to a slow roll, followed by sudden stops, shifting up and down). Besides, the learner would repeat each action a few times until they can demonstrate their mastery. It is important to understand that this learning methodology is common in many skills-based fields and learning environments.

Attentive viewing of STCW Code (1995) and STCW Manila amendments (2010) [7] reveals the urgency of the problem considered by us. We see that same graduated manner of seafarers Maritime Engineers competency-based training for different ranks beginning from ratings and ending with the chief engineer of a ship. First of all, professional training of marine engineering personnel is accomplished on three levels: the 1st is the support level (ratings, wipers, oilers, fitters, the 2nd and 1st class motormen, forming part of engineering watch); the 2nd operational level (officers in charge of an engineering watch in a manned or periodically unmanned engine room) and the 3rd management level (chief engineers and 2nd engineers on ships with main propulsion machinery of 3000 kw propulsion power or more). Gaining of each professional level is ensured by learners in course of gradual mastering of certain number of competences: 13 - on the support level; 17 on the operational level; 14 - on the management level. Besides, mastering of each competence must be confirmed by the availability of learning outcome in form of correspondent individual skills. Further this student may be permitted to proceed with higher learning and still be missing some skills that are crucial to that higher level.

Up to STCW in process of Engineering Maritime English (EME) learning succession of competences on the highest management level shows that mastery of the last competence - use of leadership and managerial skills - becomes possible as the result of gaining of communicative competences sufficient for doing the following actions: 1/ management of propulsion plant machinery operation; 2/ planning and scheduling; 3/ assessment and maintenance of propulsion plant and auxiliary machinery safety; 4/ fuel lubrication oil and ballast operations management; 5/ operation and troubleshooting of electrical and electronic control equipment management; 6/ safe and effective maintenance and repair procedures management; 7/ detection and identification the causes of machinery malfunctions and faults correction; 8/ safety of life at sea, security, marine environme

protection maintenance management; 9/ maintaining life saving, fire lighting and other safety systems. And certainly this last competence of “leadership and managerial skills” has its own learning outcome in the form of individual communicative skills set in listening, speaking, reading and writing, which enable the learner to do the following in oral and writing forms: 1) to plan and coordinate; 2) to make personal assignment; 3) to time and manage resources; 4) to prioritize; 5) to communicate effectively; 6) to assess situation and risk; 7) to demonstrate assertiveness and leadership; 8) to select course of actions [1].

Accordingly to STCW Code all skills of marine engineers independently on their rank must be accomplished by means of the working language of mixed crews - English language. The IMO acknowledged communicative method the only suitable for a competency-based teaching of English language in 2000 already. In that year was published and launched into learning the International Model Course 3.17 for seafarers, which is based on principals of communicative method.

There are some explanations why this very method was acknowledged as well for EME language learning. There is a common for some practicing teachers (S.Tomniac [2011], P. Trenkner [2010], A.Gabrielli [2012]) consideration that “Engineering Maritime English is a symbiosis between language, communication and alligator spanner wrench” [3, 5]. This subject demands from learner accumulation and elaboration a plenty of linguistic, communication and technical knowledge.

On a certain stage it becomes impossible to accumulate details without their rearrangement; a learner will be unable to move further if does not deny the previous knowledge model in favor of its new structure and content. If we introduce new pieces of learning information as different shapes we will understand that only displacement makes process of information accumulation progressive and able to develop.

Methodology. If we use traditional learning with just thoughtless plain reading of professionally oriented texts and doing homogeneous exercises for linguistic competence formation, this method activates mostly the left half of learners’ brain, which is logical, verbal, linear, vertically analyzing, non-emotional and is occupied with details, and is responsible for knowledge deepening, without putting these details into order. But if we use communicative method with its motley interactive teaching techniques, the right side of the learners’ brain considerably activates during horizontal processing of information and putting all accumulated details in emotionally-spatial order with further synthesizing them in one big picture. Using interaction as the means and the goal of study, this method is focused on communicative competence with learning outcome in form of individual communicative skills.

Thus we see that communicative method is greatly contributing to maintain self-extending system of EME learners’ linguistic and technical knowledge, and its integration with competency-based approach puts the most number of learning

information details into spatial order, facilitates development of communicative skills of learners and graduated formation of maritime engineering professional competences.

In order to manage teaching of EME in KSMA (Kherson State Maritime Academy) the teachers of English for Specific Purposes (ESP) and Business EME integrated interactive teaching with aligned aims allowing the language to enter its natural environment: the engine room. Also were integrated theory and practice, i.e. content-based learning and instructing in interactive environment was offered to the learners, and this created a symbiosis between student professional interests and learning activities. This, in its turn, triggered a successful communicative approach to EME, from which the professionally competent maritime discourse evolved. The instructing teacher's professional competence necessarily includes both theoretical and practical perspectives, which is facilitated by cross-curricular collaboration between them in form of organizing faculty development sessions, mutual visiting of each other's lessons, and master classes of teachers from special subjects department.

As we stated above, there is obviously a conflict between theory and practice in teaching of EME, and to overcome this gap we enhanced collaboration between requirements to experienced seafarers (Table A-III/1, STCW Code) with standards to communicative English language teaching. This approach helped to raise an extensive, relevant awareness of generic maritime discourse promoting mobility and globalization, seizing and imposing the maritime reality, not a utopia of idealized vessels. Firstly, teaching of integrated context improved teachers' cross-curricular competence and enforced authority for low risk communication in a context easily recognizable and therefore highly motivating for students. Secondly, it created room for oriented reflection and multilateral revision pedagogies and consequently improved EME.

There was elaborated EME curriculum and academic program, which took into account the following:

1. appropriate to a specific maritime setting (i.e. numerous marine engineering contexts);
2. determined context of situation (the marine engineer's various professional circumstances);
3. involving the participants from a specific shipboard or port speech community often marked by specific jargon (here, the marine engineer's);
4. operating and shaped under specific sociolinguistic circumstances (STCW standards for operational and management levels for marine engineers).

According to the model course 7.04 Officer in Charge of an Engineering Watch 1.5.1, in conformity with STCW 1995 table A-III/1 and Code Section B-IV/I paragraph 7, and model course 3.17 Maritime English the English language BOTH written and spoken is necessary for the exchange of communications relevant to the safety of life at sea. The Maritime English model course includes learning objectives which specify required learner's performance or what the learner must be able to do at the completion of the course.

Clear descriptors for the graduate attributes are laid down in the Yardstick of Maritime English Competency for Ship Officers (Cole & Trenkner, 2009) [4]. Elaborating from the above and from the three prompts of the Swedish National Agency for Higher Education, 1 - Knowledge and Understanding; 2 - Skills and Abilities; 3 - Professional Ethics and Attitudes (see even the Bologna Process Dublin Descriptors, 2004) the aims and objectives of the four year Marine Engineering program at KSMA includes communication aspects at sea in various ways, focusing on cross cultural communication, giving orders, socio-linguistic aspects, following standard watch keeping and safety procedures, critical, ethical and sustainable thinking and an ability to evaluate and develop personal competence in a lifelong learning perspective. Two central program objectives to be interpreted according to the Yardstick of Maritime English Competency for Ship Officers (Cole & Trenkner, 2009) [4] are shared by us below:

After completion of the program the students shall be able to:

- conduct teamwork and cooperate in groups of different backgrounds, with focus on maritime safety;

- demonstrate an ability to both nationally and internationally, orally and in writing explain and discuss information, problems and solutions in dialogue with different groups and contextually completed by prompts referring to technical understanding, skills and abilities, to put ME competency into perspective.

After completion of the program the student shall be able to:

- show broad maritime technical skills required for a senior deck officer responsible for operation, maintenance and fire protection of ship machinery and electrical equipment.

Focusing on cross course contextualization of maritime communicative settings in EME courses at KSMA, namely EME communication in speech and writing, is taught as part of marine technology and marine propulsion course modules, or as independent courses clutched into maritime technical content subjects.

Such integration is given in the course ESP, given in the 4th -8th semesters studies. ESP study (commences since the 2nd course and lasts up to the end of Bachelor's Degree getting) is taught in parallel and partly integrated with different special subjects given in KSMA. Here, joint course gives opportunity to co-operate, contextualize and integrate learning outcomes and activities alongside assessment. Apart from this, an eye is kept on context and progression within the listening to the learner's project presentations, given by the 4th year students, engaged in the course Marine engineering project, and conveyed in a short reflective text. Integrated, situational learning under these circumstances also enable peer work reflection and analysis at program level allowing for transformative learning and transferable knowledge, with focus on interdisciplinary critical thinking skills and progression and higher order thinking skills.

The 2nd year ESP is a two-module course, designed to develop the students' written and oral proficiency, and knowledge of terminology specific to the marine technology context. After completion of the course the students will have consolidated intermediate speaker grammar skills and developed general written

language skills. In addition, the students will have acquired increased comprehension of marine technical texts and be able to use their communicative skills, to structure and deliver technical content in writing and orally.

This integrated ESP language and communication course module is designed to develop the students' written and oral proficiency and knowledge and understanding in managing safe and effective maintenance and repair procedures on-board according to STCW AIII/2 - Maintenance and repair at the management level. The students choose their topics for the overhaul report from many different OVERHAUL subjects given by the technical teacher. One topic, for example, is "Piston dismantling and clearance checking between piston crown and skirt at MAN B&W 40/45". The information needed to write the overhaul reports, is found in computer based maintenance programs and in technical manuals/instruction books in English following up on ME model course requirements in the table above) and the template for the report is generated by the teachers in accordance with relevant IMO standards. The marine setting is very clear in this context and language learning activities are generated to also follow up on the marine engineer's professional competence.

Oral language proficiency and fluency are assessed through the oral presentation when the students describe their overhaul subject, i.e. not the overhaul procedure on a specific engine but a general procedure. The presentation of the example above should hence describe the "piston dismantling and the checking of piston crown and skirt". Listening to each other's presentations, the students receive basic knowledge of many different overhaul procedures, and also encounter a wide and commonly used maritime technical vocabulary in English. As both technical subject and ESP instructors assess the presentations, follow-up questions are asked and answered to trigger creative discussions in class. The teaching activities and assessment are integrated as follows:

1. Joint course introduction alongside a number of language and communication lectures on language proficiency, report writing and oral presentation technique alongside critical reading instruction. The lectures are assisted by the technical subject instructor.

2. Interactive peer response session when the students cross-read each other's drafts of the overhaul reports and give feedback to their peers. ESP and technical subject instructors supervise, give feedback on the report drafts and jointly assess both drafts and peer response session. Students are asked to reflect upon their learning outcomes post to the session and hand in a short written commentary.

3. Oral presentation session, supervised, assisted and assessed by both ME and technical subject instructors as part of course examination procedures. The instructors engage the students in interactive discussions during the session, as these are asked to prepare critical questions prior to the session.

4. Written overhaul report jointly assessed by ESP and technical subject instructors, from both language and technical content perspective as part of examination procedures.

5. Joint or separate tutorials at the students' request.

The technical content evaluation is made according to the following STCW-criteria for evaluating the competence "Maintaining safe and effective maintenance and repair procedures" (STCW 1/13/3)

□ Maintenance activities are correctly planned and carried out in accordance with technical, legislative, safety and procedural specifications,

□ Appropriate plans, specifications, materials and equipment are available for maintenance and repair;

□ Actions taken lead to the restoration of plant by the most suitable method.

And the STCW standards addressed accordingly are:

A13/2 Function: Maintenance and repair at the management level

Competence: Manage safe and effective maintenance and repair procedures

Knowledge, understanding and proficiency:

■ Marine engineering practice;

■ Manage safe and effective maintenance and repair procedures;

Planning maintenance;

■ Planning overhaul procedures.

Conclusions. Specific maritime settings and contexts for these three ESP (2nd, 3rd and 4th) integrated courses, depending on specific technical or/and linguistic goals, are detailed in the graduate attributes, adjusted to IMO model courses. This serves as an example how cross-curricular integration can be achieved, following up on STCW standards and using competency-based approach to EME teaching management.

Анотація

У статті обґрунтовано переваги управління процесом компетентнісного викладання інтегрованого курсу англійської мови морського спрямування шляхом використання комунікативного методу.

Ключові слова: компетентнісний підхід, комунікативний метод, інтегрований курс.

Аннотация

Статья рассматривает преимущества управления процессом компетентностного преподавания интегрированного курса английского языка морской направленности путём использования коммуникативного метода.

Ключевые слова: компетентностный подход, коммуникативный метод, интегрированный курс.

References:

1. Bowden, JA. Competency-based education: Neither a panacea nor a pariah. 1995. Available at: <http://crm.hct.ac.ae/events/archive/tend/OI8bowden.html>. Accessed January 3, 20.

2. Calhoun, J, Rowney, R, Eng, E, Hoffman, Y. Competency mapping and analysis for public health preparedness training initiatives. Public Health Reports. 2005; 120(suppl): 91-99.

3. Cole C., Trenkner P. - Raising the Maritime English Bar: the STCW Manila Amendments and their impact on maritime English. Proceedings Maritime English Conference IMEC 22, 2010, Alexandria Arab Academy for Science, Ichnology and Maritime Transport. - P. 3 - 16.
4. Cole C, Trenkner P (2009). The Yardstick for Maritime English STCA assessment purposes. IAMU Journal 6 (1), [13-28]. Tokyo: IAMU.
5. Gabrielli A., Gabrielli C., Pahlm H. Engineering Maritime English: a symbiosis between language, communication and an alligator spanner wrench. - International Maritime English Conference IMEC 24, 2012, Yangon, Myanmar, 2012-P.41 -52.
6. Hoogveld, A, Pass, F, Jochems, W. 2005. Training higher education teachers for instructional design of competency - based education: product - oriented vs. process -oriented worked examples. Teaching and Teacher Education. 2005; 21 (pt 3): P. 287-297.
7. The Manila Amendments to the Seafarers' Training, Certification and Watchkeeping (STCW) Code. - STCW/CONF. 2/34. - 3 August 2010. - P. 104 - 107.