

## METHODICAL TECHNIQUES ON TEACHING “METEOROLOGY” AT THE ENGLISH LESSON FOR DECK OFFICERS

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The article deals with the essential methodical techniques on the teaching “Meteorology” for deck officers. It was analyzed the scholars concerning the Meteorology for Navigation and focused on their interpretation of the term “Meteorology” and learning issues which are offered students of the Deck department. They are B. Liu, K. Taylor, L. Hasse, L. Xie, T. Grice, W. Stanley Wilson. Distinguished the role of meteorology in safe navigation. It is a result of the techniques to predict the consequences due to severe weather conditions, analyze the meteorological data, act in accordance with nautical publications: Admiralty Sailing Directions, Port Entry Guide, NAVTEX messages which are stipulated and regulated by IMO (International Maritime Organization) to avoid any marine emergency. Suggested at the lesson of the Maritime English for deck officers such learning techniques for the effectiveness. They are: flipped classroom; design thinking; self-learning; gamification; social media; free online learning tools. It was presented detailed description of the lesson planning according to the topics where all mentioned learning techniques combined and lead to the ability to speak about the meteorology for safe navigation. The module consists of three topics, each of it has 5 lessons basing on EASA (Engage, Activate, Study, Activate) teaching approach. There was defined the professional competencies after each topic: able to read and describe weather maps, describe the sea state using the Beaufort Scale; report about weather conditions according to the NAVTEX message and essential competency of the whole module is to speak about meteorological information for safe navigation. Offered the assessment of the students’ professional skills gained after the module: computer test at learning platform Moodle – 24 miscellaneous open/close test – 5 points; oral professional competency – 10 questions – 10 points. Checked appropriateness, fluency, accuracy. Made a conclusion about the methodical techniques’ usefulness and effectiveness at the lesson of the Maritime English for Deck Officers.

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## МЕТОДИЧНІ ЗАСОБИ ВИКЛАДАННЯ МЕТЕОРОЛОГІЇ НА ЗАНЯТТІ З АНГЛІЙСЬКОЇ МОВИ ДЛЯ СУДНОВОДІЇВ

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**Ключові слова:** судноводіння, мореплавиці, студенти, заняття англійської мови для спеціальних цілей.

У статті розглянуто основні методичні прийоми навчання метеорології для офіцерів палуби. Проаналізовано праці науковців із питань метеорології для судноплавства та зосереджено увагу на їхній інтерпретації терміна «метеорологія» та питаннях навчання, які пропонуються студентам кафедри судноводіїв (Б. Лю, К. Тейлор, Л. Хассе, Л. Сі, Т. Грис, В. Стенлі Вілсон). Визначено роль метеорології в безпечній навігації, а саме: результат методів прогнозування наслідків унаслідок суворих погодних умов, аналізу метеорологічних даних, дії відповідно до морських публікацій («Адміралтейські напрямки плавання», «Керівництво по входу до порту», повідомлення NAVTEX), які передбачені та регулюються ІМО (Міжнародна морська організація), щоб уникнути морських надзвичайних ситуацій. Запропоновано на занятті морської англійської мови для офіцерів палуби такі методи навчання для ефективності: перевернутий клас, дизайнерське мислення, самонавчання, гейміфікація, соціальні медіа, безкоштовні інструменти онлайн-навчання. Представлено детальний опис планування навчального заняття відповідно до тем, де всі згадані методи навчання поєднувалися і давали можливість говорити про метеорологію для безпечної навігації. Модуль складається з трьох тем, кожна з яких має п'ять уроків на основі підходу EASA (Занурення, Дія, Вивчення, Дія). Після кожної теми було визначено професійні компетенції: вміння читати та описувати карти погоди, описувати стан моря за шкалою Бофорта; звітувати про погодні умови згідно з повідомленням NAVTEX, й основна компетенція всього модуля полягає у тому, щоб говорити про метеорологічну інформацію для безпечної навігації. Запропоновано оцінку професійних навичок студентів, отриманих після модуля: комп'ютерний тест на навчальній платформі Moodle – 24 різні тести відкритого/закритого типу – 5 балів; усна професійна компетентність – 10 питань – 10 балів. Перевірено доречність, плавність, точність відповідей студентів під час говоріння. Зроблено висновок про корисність та ефективність методичних прийомів під час теми «Метеорологія» на занятті морської англійської мови для офіцерів палуби.

**Introduction.** The processes of globalization and digitalization nowadays run not only business, economics, politics but education too. The teachers of high school are at stand by position to absorb and implement new methodical techniques at the practical classes for encouraging students to gain their professional, cultural results successfully. It is a result of the techniques to predict the consequences due to

severe weather conditions, analyze the meteorological data, act in accordance with nautical publications: Admiralty Sailing Directions, Port Entry Guide, NAVTEX messages which are stipulated and regulated by IMO (International Maritime Organization) to avoid any marine emergency [2; 6; 8]. The role of the meteorology in safe navigation is a result of the techniques to predict the consequences due to severe

weather conditions, analyze the meteorological data, act in accordance with nautical publications: Admiralty Sailing Directions, Port Entry Guide, NAVTEX messages which are stipulated and regulated by IMO (International Maritime Organization) to avoid any marine emergency.

Our research is devoted to the effective methodical techniques on teaching “Meteorology” at the English lessons for Deck Officers. We shared the view of L. Xie that Marine meteorology is a subfield of meteorology, which deals with the weather and climate as well as the associated oceanographic conditions in marine, island, and coastal environments [4]. L. Hasse presents the fundamental principles of marine meteorology and describes the observation, prediction, and application systems of marine weather and climate [5]. From the teaching point the problem of meteorology was studied and suggested by Tony Grice “English for maritime Industry” but it was not given as a lesson-based structure yet [4].

**The aim of the article is** to specify the essential methodical techniques on the teaching “Meteorology” at the English lesson for Deck Officers.

**Main body.** We suggest to apply and combine via communicative and integrative approaches at the lesson of the Maritime English for Deck Officers such learning techniques for the effectiveness. They are: flipped classroom; design thinking; self-learning; gamification; social media; free online learning tools.

The learning module “Meteorology for Deck Officers” is studied at the 3d course (the 5<sup>th</sup> semester) according to the syllabus of “Maritime English for Deck Officers”. At the end of this learning module students will be able to read and describe weather maps, describe the sea state using the Beaufort Scale; report about weather conditions according to the NAVTEX message. The achieved skills are assessed at the end of the module with a topic test and oral competence [1].

The module consists of three topics, each of it has 5 lessons basing on EASA (Engage, Activate, Study, Activate) teaching approach.

*Topic 1 “Weather Maps”, Lesson 1* – “Precipitations” students are offered to do a quiz at the stage “Engage” concerning deeper, additional meteorological knowledge to remind some issues from the professional subject and emphasize their attention on effectiveness and importance of the multidisciplinary integration. The students are involved into the English surrounding expressing their points of view, demonstrating professional skills, assess their knowledge and its lack.

At “Lead in” students describe the weather pictures and match the mentioned pictures above with appropriate description. At this stage students gently proceed to the lesson topic. “Study stage” is presented by Reading section where students firstly watch a video and complete the table about the precipitations

and sky state and make suggestions about possible wind force and its consequences. During the reading students shall check their guesses about Tornado Alley phenomena – its wind force, direction and precipitations. After the text there are some activities to complete the sentences and answer the questions eliciting the information from the text and checking the text understanding. At this stage there is a big risk to come across different lexical challenges, that’s why, it’s presented the list of activities for their practice. They are “label the weather symbols...”, “write down the meanings to the words ...”, “complete the sentences”, “read the statements and draw the symbols in the map”. For semi-controlled practice students may their own professional experience and list the precipitations which they experienced mostly in their voyage; name the precipitations which affect the visibility in the biggest way; underline the precipitations which cause more harm to the vessel’s construction; highlight the precipitations which are impossible to experience while at high sea. “Activate II” depicts a case study relating to the topic of the lesson. Students have to highlight the precipitations, discuss their role in that case and at the end to act out the conversation between officer at the Centre for Weather Forecast and OOW about the weather conditions to complete the Weather Info Form to implement their gained lesson skill and demonstrate the ability to understand and use new material.

*Lesson 2* is devoted to the wind direction and its force. Firstly, students engage into doing the rebuses and answering the questions concerning the meteorological instruments (anemometer, thermometer, psychrometer, barometer). Then, activate students’ knowledge through such activities as write down the wind force and its directions, match the wind barbs with the wind speed. For describing those issues grammar spot “As adjectives southward vs southerly” is given here illustrating by such activities as circle the correct option; match the sentence halves. The stage “Activate II” has a case related to the current topic and grammar issue. Basing on the ship’s route students shall describe wind direction and force changes from Nanjing to Chongqing; map the symbols of wind direction and force. It’s worth to attract your point the extreme activities of this lesson are focused on the implementation of the theoretical knowledge by using the web site [passageweather.com](http://passageweather.com) and compare winds in different regions (from Port A to Port B); compare the winds in one region in the morning and at night.

*Lesson 3 “Types of Wind”* is rather informative and theoretical one but the final competency is achieved by making a report on winds which were during last voyages using the plan: geographical area; wind characteristics; type of wind; any consequences. Students work with the text analyzing

the winds' variety and their peculiarities; defining the factors of the wind on appropriate area, conduct a debate on the given actual statements.

*Lesson 4* "Wind description" is mostly built on the usage of the SMCPs (Standard Marine Communicative Phrases) for broadcasting and transmitting the meteorological communication about the wind description. Simultaneously, students may develop their audible skills watching a video and writing down SMCPs reporting about the weather changes or answering the questions using SMCPs. At the end students shall role-play the situation using the web site <https://www.weatheronline.co.uk/> and reading weather map using the plan: wind type; wind force and its direction. Student A interviews the partner about the winds of some regions. Student B reports the partner about the winds where your vessel is.

*Lesson 5* "Reading Weather maps" – teacher may elicit the knowledge about the weather maps through the activity "Do you know ..." and discussing the questions about the different types of maps and their purposes. "Activate stage" is presented by the text with weather map information: fronts, pressure systems which students need to read, highlight the dummy sentences and then tick the correct option. During the "Study stage" we offer to practice the lesson vocabulary choosing the correct option and completing the sentences. As semi-controlled activity it is to write a memo on how to navigate during different climatic fronts. The lesson is finished with the case which students shall read, title it and study the map of the mentioned sailing route and describe the fronts which might be prevailing; describe the precipitations which might be during mentioned fronts. Final activities are: to role-play the situation where Student A is Met Officer. He conduct a briefing on how to read the weather map to predict the emergencies. Student B interviews Met Officer and makes a memo for crewmembers about the weather map content; to discuss the questions: 1. *How to know the proper hemisphere by the means of isobars?* 2. *What pressure system does dry weather imply? Why?*: to study a meteorological map and describe it using the plan: pressure systems, sky, precipitations, fronts.

*Topic 2 "Sea State", Lesson 1 "Beaufort Scale"* depicts the Beaufort Scale by itself, students may read a note and discuss the questions eliciting the knowledge about Beaufort Scale information (sea state, wave length). In pre-reading task there is a list of questions basing on the pictured: *Is the wind force 2, 6 or 12? Justify you choice. Is this a picture of a 'strong breeze' or a 'severe gale'? Is there any spray? Are the waves 'glassy', 'large' or 'high'? What is visible on the top of some of the waves? Is visibility 'good', 'reduced' or 'poor'?* In while-reading task students need to read the information in the table and complete it. Post-reading activity is presented by

answering the questions. At "Study stage" there is a new portion of vocabulary which is used during the whole lesson including the speaking activity to watch a video and describe the sea state using the plan: Beaufort number, sea criterion, wave characteristics.

*Lesson 2* "Weather provoking the emergency" specifies the information about different severe weather phenomenon during navigation and their consequences. Students are offered to study a pie diagram and match the accident factors with their quantity and discuss the question to engage them to participants and active involvement at the lesson. At the "Activate stage" students need to watch a video and answer the questions and then match the sentence halves according to the video content, at the end to list the main consequences for navigation caused by that cyclone. All viewing tasks are given in correspondence with IMO Model course 3.17. Language study is presented by the new vocabulary, for describing and analyzing the bad weather conditions which provoke the emergencies, to circle the words which can concern severe weather; write the circled words and the definitions for them. Last activity is a role-play of the situation where Student A is Third Officer of m/v Florida. He's recently come back the voyage. He makes a report about the emergency caused the weather conditions. Student B is a seaman of m/v Laguna. He interviews the partner on weather conditions and sea state of that situation.

*Lesson 3* "Ship motions". Students work with the authentic document - Deck Log Book and analyze the weather changes and discuss the question on how weather impacts on the ship motions. At the Reading students get familiar with ship motions, practice them during the Study through the matching the words with the definitions and labeling the pictures with the words. Students need to analyze a case and list the alternative ways on how to prevent the emergency and apply the gained skills in role-play of the situation. Student A is a cadet of KSMA. He is at the maritime scientific conference. He presents key points how ship motions affect the navigation. Student B is a cadet of ONMA (Odessa National Maritime Academy). He is the participant of the maritime scientific conference. He interviews your partner on ship motions.

*Lesson 4* "Tides and currents" points the main aspects about the tides and currents and their role in navigation. Students do all reading stages and new vocabulary at the Study stage to apply lesson skills in the final activity - role-play the situation where Student A is a reporter of a marine magazine. He interviews his partner about the tides and currents which were met during his last voyage. Their types, characteristics, areas. Student B is a seaman has just come the voyage. He speaks about the tides and currents of the sailed area.

*Lesson 5* “Tide Table” is about the main practical issues on how to work with Tide Table calculating the existence of the nearest tides. At the Activate II students study the chart and discuss the preferable positions for anchorage using Tide Table using a Model:

*Is it possible to drop the anchor at Boyndie bay in the evening of the 31<sup>st</sup> of October with ship's draft 10 m? – Chart Datum of this area is 3.4 m. Tide Table info is 3.8 m. It means the total depth is 7.2 m. The Anchorage is desirable.*

*Topic 3* “NAVTEX Message”, *Lesson 1* “NAVTEX Checklist receiver” where is depicted the checklist to discuss the points which have to be checked and monitored by mariners. Students practice some grammar points on *each* and *every* and make the guidelines on checklist content. They role-play the situation. Student A has just come back the voyage. He informs the partner about key points of NAVTEX checklist receiver. Student B is going to the voyage. He interviews the partner on key points of NAVTEX checklist receiver.

*Lesson 2* “NAVTEX Message Content” presents the activity to study the pictures and answer the questions: *What are the similarities of these pictures? What devices can broadcast this information? Which one was used by you during your voyage? What for?* “Activate” is illustrated by Reading to study a NAVTEX message blank and discuss the functions of its elements; to read a text and check your guesses; to read the text again and highlight different semantic paragraphs; to justify your choice; to mark the sentences as true (T), false (F) or doesn't say (DS). Students need to study the NAVTEX message and complete the blank. The appliance of the skills is in the activity – to use the web site <http://www.navtex.lv/navtex/MainTable> and describe the NAVTEX messages using the plan: class of message; transmitting station; transmitting date; content. As a result, students shall role-play the situation. Student A is officer at Pilot service. He broadcasts the NAVTEX message to the Ship. He types the NAVTEX message. Student B is OOW. He interprets received message.

*Lesson 3* “How to read a NAVTEX Message” contains all stages of EASA approach. At the beginning of the lesson students are offered to discuss the questions and then play the game “Call my Bluff” reading the definitions and tick the incorrect variant.

It's an example of Engage stage where students may assess themselves from this topic and analyze the topic issues. Next stage is presented by Reading – to read the message and fill in the gaps with the words from the box; to study the NAVTEX message and correct the factual mistakes if any; to complete the parts of NAVTEX messages. At the Study stage students work with the abbreviations. During the semi-controlled activity they need to read a NAVTEX message, fill in the Log Book and answer the questions: *What type of NAVTEX message is it? What is a transmitter coverage area? What is a number of the message?* For demonstration the professional topic skills it is given an activity to surf for information on <http://navtex.lv/navtex/MainTable>: read the message of different types; report about the type of message, its content, date of transmitting [7].

*Lesson 4* “Fax Weather Report”. Students do a quiz, discuss the questions: *What's the difference between a NAVTEX message and fax weather report? Can a NAVTEX message be replaced with a fax weather report? Why? Why not?* [3]. Activate stage starts with the mind map “Fax report items”. Then they read the fax message and answer the questions: *What helps you to identify this message as an 'urgency' one? Who/what is 'Melanie'? How fast is the hurricane moving? What is a direction of the hurricane?* While reading they should also scan the message and highlight its key parts; mark the statements as True (T) or False (F). After discussing a case students role-play the situation. Student A is OOW. He completes the weather report form and transmit the information to Meteorological station. Student B is Officer in Meteorological Office. He reports received information.

*Lesson* “Review. Meteorology” finishes the whole module. Students apply all gained skills in cases. The lesson is recommended to conduct as a case study one.

**Conclusions.** Summing up all mentioned arguments above we may make a conclusion that the learning module “Meteorology” for Deck Officers at the English lessons is rather multidisciplinary and complicated topic which covers a big range of competencies and problems. But the effective and positive methodical techniques applied by teacher of the English language for SP during the module and each lesson lead to the successful result and professional efficiency.

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