

Compliance with Legal Aspects of the Applying of e-Learning in the Training of Seafarers

S.S. Sokolov, N.M. Kovalnogova, A.V. Mitrofanova, V.A. Stepanov & A.P. Gorobtsov
Admiral Makarov State University of Maritime and Inland Shipping, Saint-Petersburg, Russia

ABSTRACT: The article examines applicability of the world experience of e-learning and distance education technologies structure to STCW recommendations and national legal requirements of the Russian Federation. There are comprehensive comparative analysis of a distance learning system and STCW recommendations. There are some results of the distance education system LMS "FARWATER" test period for the benefits of seafarers vocational education and the Admiral Makarov State University of Maritime and Inland Shipping (Admiral Makarov SUMIS) where the LMS "FARWATER" was designed.

1 INTRODUCTION

The e-learning and distance education technologies (DET) application in international educational institutions takes one of the most important places in the education process management. In Russia the definition of "distance education" (next – DE) was legally determined in 1995: "Distance education is the complex of educational services, giving to general population in country and abroad, using special informational and educational environment on any distance from educational institutions". For the past 20 years, DE has changed dramatically: teaching methods have changed, the diversity of systems intended to use DE has grown and the popularity of using this teaching method has increased too. This is, partially, due to the fact that using Internet as the education process media is necessary for a quick data search, professors' and students' communication and their resources outreaching as well.

2 THE E-LEARNING AND DISTANCE EDUCATION TECHNOLOGIES WORLD EXPERIENCE

According to various researches, international educational Institutions, (including those that are specialized in Maritime Education and Training (MET) process of training seafarers and are reported to be official members of the International Association of Maritime Universities (IAMU), has been using the e-learning and DET for a long period of time: 7-10 years on the average or more than 15 years in some cases.

The e-learning and distance education technologies are used at different levels of education; generally they are applied for advanced professional training. High and higher education programs apply the e-learning and distance education technologies as an addition to the traditional education. It is necessary to point out that there is a National list of professions, issued by the Russian Federation Ministry of Education and Science Order № 22, dated January 20th 2014, which electronic

education and training (ET) programs restrict to accept if solely provided by e-learning and distance education technologies. Actually, this fact prevents from the e-learning and distance education technologies to be applied to ET programs on designated professions. [1].

To carry out the e-learning and distance education technologies education process, it is essential to use program-technical, technological and telecommunication aids.

The Russian and International markets of distance educational services and maritime and inland shipping educational markets provide various simulators, web-applied training, allowing to carry out workshops by using models of various vessels on virtual area at river and at sea.

Web-simulator for maritime education is the distance accessible software package, which allows importing any maritime objects, devices, systems or equipment with specified level of reality. Access to a web-simulator for a user is based on a trivial browser and connection to the Internet. Web-simulators rely on networking and cloud technologies, which allow eliminating the low technical requirements barrier to the user equipment. Complex equipment designed for training of maritime and inland shipping personnel to be developed on the basis of personal computer technologies. It allows increasing simplicity of simulators educational process, being too expensive at the same time.

Original aids to e-learning and distance education technologies are considered to be Learning Management System (LMS) or Learning Content Management System (LCMS). Such an advanced type of systems let not only the course general information be available, but provide a scope of other possibilities for software developers:

- providing set of necessary tools for the development of curriculum (the creation of lectures, workshops as in educational material)
- monitoring the training activity (tests and tasks)
- reporting on learning effectiveness (statistics)
- providing communication between students and teacher (questionnaire, forums and chats)
- manage students activity (registration and controlling access)
- participants distribution into groups for common courses reporting
- integration of an additional elements into educational process (training videos, animation, glossary, links to sources and etc.)
- providing protection devices need for network.

There are individual tools to carry out webinars and virtual classes that can be used for extended functionality of a system to go along with LMS and LCMS. The most widely used technology is LMS – such as Moodle, Blackboard, etc., which are based on.

Sometimes educational institutions use several program platforms to managed the education process on a base of Moodle, Blackboard, Sakai, Canvas, edX, Coursera and others, including own platforms, for example.

The diagram on figure 1 shows that Moodle LMS (learning management system Modular Object-Oriented Dynamic Learning Environment) is widely

used by 30% of the observed educational institutions. Looking from the geographic point, this platform is mostly installed in Eastern Europe and much less in Asia, Africa and Americas. Approximately 30% of educational institutions design their own education and training application and distribute it free of charge in Internet-shops for iOS or Android operational systems.

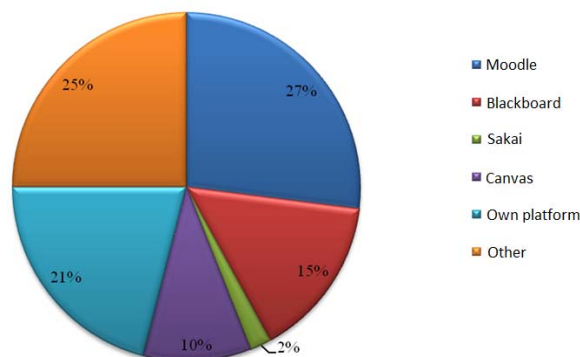


Figure 1. The e-learning and distance education technologies application in observed educational institutions

Educational institutions issue training materials and include it in e-libraries as well as in universal applications such as iTunes U (iTunes U appears to be the most prominent online catalogue of free-of-charge books all over the world). To store and distribute lecture, conference and practical training video-materials, MET Institutions have got used to making up their own channels at video-hosting, such as YouTube, Wikimedia Commons, Vimeo.com, Flickr, to let various materials be available for free.

3 E-LEARNING AND DISTANCE EDUCATION TECHNOLOGIES LEGAL BACKGROUND

The core legal document in Russia for e-learning and DET appliance by Educational institutions including MET is considered to be the State Law № 273 – SL on “Education in Russian Federation”, issued December 29th 2012 [2].

This bill is intended to be a concise set of public relations appearing to exist within education process, when people use their right to get education, providing the State guarantees of rights and freedoms to the citizens in the field of education and. Moreover the document determines the legal status of all education process participants and it establishes the economic, legal and organizational basis of education and training in the Russian Federation.

In addition to the State Law № 273 the Federal State Education Standards are applied. There are some other legal documents issued by the Russian Federation Ministry of Transport and Ministry of Education and Science intended to manage education and training process. For example, Ministry of Education and Science Order N 2, dated January 9th, 2014, "On assertion of the e-learning and distance education technologies order of application by educational institutions" [3] establishes requirements for DET.

The major document, providing international standards on training, certification and watchkeeping for seafarers is the International Convention on Standards of Training, Certification and Watchkeeping for seafarers 1978 as amended (STCW 78) [4].

Training of maritime specialists should meet the requirements of the Convention STCW 78. In this case, the seafarer who successfully completes the training according to the STCW 78 will be able to work not only on board ships sailing under the Russian flag, but practically anywhere in the world merchant fleet. The STCW 78 admits the application of e-learning and distance education technologies within the education process of seafarers, according to training and evaluation standards.

Section B-1/6 subparagraph	Level of compliance
Guidance for training by distance learning and e-learning	
p.7 Each Party should ensure that any distance learning and e-learning programme is provided by an entity that is approved by the Party; is suitable for the selected objectives and training tasks to meet the competence level for the subject covered; has clear and unambiguous instructions; provides learning outcomes that meet all the requirements to provide the underpinning knowledge and proficiency of the subject; provides professional tutorial support.	<p>There is Agreement on adoption of the University by the Ministry of Transport of Russian Federation as the recognized organization provided seafarers education and training in accordance with STCW 78.</p> <p>The curriculum of "Refresher and updating course for OOW" course based upon the Program already agreed by the Russian Maritime Administration. It allows to realize goals and objectives for refresher training of any OOW according to his (her) competency level be provided by both traditional way and in a distance learning format.</p> <p>There are full set of user instructions for any categories of LMS "FARWATER" user.</p> <p>Capabilities of the LMS "FARWATER" enable the trainee to systematically rethink material learned through both self assessment and tutor-marked assignments, via review of personal results of testing, components of an electronic course.</p> <p>Tutorial support is provided by phone and by email, direct online or off-line exchange with the nominated tutor (teacher or instructor) as well.</p>
p.9 Where e-learning is provided, common information formats such as XML (Extensible Markup Language), which is a flexible way to share both the format and the data on the World Wide Web, intranets, and elsewhere, should be used	LMS "FARWATER" is build on the Moodle platform operating under SCORM (Sharable Content Object Reference Model) is well designed for distance learning systems. It support XML format as well.
p.10 The e-learning system should be secured from tampering and attempts to hack into the system	<p>There is a complex of technical measures to secure personal data information of LMS "FARWATER":</p> <ul style="list-style-type: none"> • restriction and distinction access rights for any person; • restriction and distinction access rights to information and program of LMS "FARVATER" for crew; • obligatory requirements to the password complexity level; • secure protection of authorized sessions; • verification via internal databases of a training enquiry for registration; • user activity control (every log-in and log-out, database update, all data storage in log-files); • backup of the LMS content.
Guidance for assessing a trainee's progress and achievements by training by distance learning and e-learning	
11 Each Party should ensure that approved assessment procedures are provided for any distance learning and e-learning programme, including clear information to the students, test questions; procedures in place to ensure questions are kept up to date; the conditions where the examinations can take place; secure procedures for the examination system and secure validation procedures to record results.	<p>After the application had been applied by student and personal admission is granted, student gets access to the course, the set of amicable instructions for smooth operations with the LMS "FARWATER" accompanies each admission.</p> <p>Flexible content settings of LMS "FARWATER" allow educational and final tests to be designed so that test questions are clear and adequate to properly assess a trainee's competence.</p> <p>To keep content in electronic course regularly updated we apply two levels of control:</p> <ul style="list-style-type: none"> • Trainee success monitoring by Chief trainer, final test to be evaluated by the examination commission; • Checking electronic course content inspection by administration staff of the Institute. <p>Current content settings of LMS "FARWATER" for every given test can adjust trainees control to examinee: tests can have limited period of a test, date of exam, quantity of trials.</p> <p>Chief of the course has access to all students test trials.</p> <p>Possibilities of LMS "FARVATER" allow to carry out current test for student using distance technologies.</p> <p>Final test to be passed within designated LMS base point internally only, personal identification and prevention of invigilation provided in the LMS base point. After final test members of examinational commission check the result.</p>

Figure 2. Correspondence to STCW 78 Code, Part B

4 THE EXAMPLE OF THE LMS "FARWATER" COMPLIANCE TO TRAINING AND COMPETENCY EVALUATION STANDARDS OF THE STCW 78 CONVENTION

There has been applied LMS "FARWATER" to carry out educational and training programs in Admiral Makarov SUMIS with application of distance educational technology. The system is based on Moodle platform, which is considered to be a system designed to manage education process. The full title of the system is Modular Object-Oriented Dynamic Learning Environment.

Figure 2 presents correspondence of our distance learning system LMS "FARWATER" capacity to STCW 78 Code, Part B guidance.

5 PRELIMINARY RESULTS OF LMS "FARVATER" OPERATION

Since June 20, 2016 Training Center of Additional Professional Education for Skippers (next – TC) of Admiral Makarov State University of Maritime and Inland Shipping has begun to hold permanent distance learning courses on three educational program: "Revalidation of Captain Certificate of Compliance (CoC)" (next – CD), "Revalidation of Chief Officer CoC" (next – COCD) and "Revalidation of OOW CoC" (next – OOW). All three courses use aforementioned LMS "FARVATER". Over the last 4 months of testing period that way of learning has shown increasing popularity due to time and money saving. Table 1 shows quantitative indicators of using distance learning courses during the period from June to September, 2016.

Table 1. Statistics of using distance learning courses

Period/Course	CD	OOW	COCD
June	4	-	-
July	17	8	7
August	-	-	-
September	22	4	10

Program implementation of TC at Admiral Makarov State University of Maritime and Inland Shipping by using distance learning system is actually at the initial stage of development. It is important to point out that capability of the LMS designed is fully compliant to STCW 78 Convention.

6 THE CONCLUSION

In this way, nowadays e-learning and DET quickly implemented into traditional educational system. Learning on different educational programs can be realized in distance form and still meets requirements of the Russian legislation.

Furthermore combination of additional investment opportunities of learning process, aligned to traditional educational methods and practices, can increase the importance of student's self-educational

activity. Consequently it will increase our graduate's employee value on maritime labour market, giving a unique possibility independently develop new competencies.

REFERENCES

[1] Minobrnauki RF Order of 20.01.2014 N 22 (update of 10.12.2014) "On adoption of Nomenclature of professions and specialties of high professional education which cannot be provided solely in a form of electronic education and/or distance educational

technology" (Ministry of Law Registry, 21.02.2014 N 31377)

[2] Federal Law of 29.12.2012 N 273-ФЗ (update of 13.07.2015) "On education in the Russian Federation". Consultant.ru: online reference system URL: <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=LAW;n=182943>

[3] Minobrnauki RF Order of 09.01.2014 N 2 "On adoption of Regulation of distance learning for educational organizations based upon electronic education, distance learning educational technology during education process" (Ministry of Law Registry, 04.04.2014 N 31823)

[4] STCW Convention 1978 and the STCW Code as amended. [Text]. -SPb: ZAO «CNIIMF», [2010]. - 806, [1]p.; ISBN 978-5-8072-0109-6.