



A contribution towards using multimedia and Moodle at the Faculty of maritime studies in Kotor (Montenegro)

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Abstract: *The paper describes how multimedia can be used in the preparation of instructional materials and their exporting to the web. As an example, e-educational materials for the course “Information technologies in navigation”, at the Faculty of Maritime Studies (University of Montenegro), are taken into consideration. Specifically, using Camtasia Studio (ver.7) multimedia program in the preparation of audio and video lectures in ECDIS, along with their adjustment for exporting to the Moodle portal are presented. Additionally, some general guidelines for further development of e-learning in the blended environment at the Faculty are given.*

Keywords: *e-learning, blended environment, Camtasia Studio program, Moodle*

1. INTRODUCTION

Over the past few years, at the Faculty of Maritime Studies (University of Montenegro), Moodle system has been used in support of the classical mode of carrying out education. Moodle makes teachers' job easier in terms of using it as a repository of educational materials, notice board, medium to communicate with students and testing of knowledge in manner that it automatically generates the results being achieved by the students. On the other side, Moodle is important to the students as well, since it provides unrestricted access to the instructional materials prepared in electronic form. By the web portal students are timely informed about the courses and their obligations; then, throughout the forums, students can exchange their views with teachers and other students on specific topics; they can also exercise self-check quizzes based on the possibilities of multiple-choices, etc. Most importantly, Moodle is a sort of extension of students' activities in smart environment created by extensive use of mobile phones (tablets). In other words, everything that is of e-type, including Moodle, is attractive to the students. In addition to traditional textual/PDF files, some of the teachers have made efforts to adapt instructional materials towards some specific courses' requirements through introducing formulas into Moodle, pictures, schemes of electronic circuits, complex mechanical drawings, etc. Some teachers have invested a lot of work in audio recording in the background of PowerPoint presentations. There are also some recorded tutorials for using certain narrow-purpose software tools (e.g., the one for managing electronic navigational charts). These tutorials are created in

Camtasia Studio program. We consider this very important, and therefore the special attention will be paid to these examples in the paper.

Teachers who have been actively involved in the implementation of Moodle in combination with multimedia, as an additional mode of education/learning to the traditional one at the Faculty, independently or in collaboration with colleagues from other higher education institutions of education, instructional design, information technology and new media in knowledge transfer, from abroad and from the home country, published a significant number of research papers devoted to the issue of e-learning in blended environment, with emphasis on the Faculty of Maritime Studies' individual needs and experiences. Some of these papers are listed in the references [1-6;8-11] with the intention of further dissemination.

Within the following segments of the paper, two examples of employing multimedia software for the (post)production (Camtasia Studio, ver.7) are presented, in the case of teaching ECDIS. Besides describing possibilities of highlighting important moments in teaching ECDIS, through the appropriate Camtasia Studio visual and audio effects, it is shown how the assessment of the students should be realized automatically. Moodle is used as a frame for the presentation and communication.

2. USING MOODLE AND MULTIMEDIA AT ECDIS EXAMPLE

In this section, we present an example of how Camtasia Studio multimedia tool and Moodle platform can be used to support traditional teaching within the subject of Information technologies in navigation, in the field of ECDIS, which is very important topic in the context of emerging e-Navigation concept.

ECDIS (Electronic Chart Display and Information System) is an entirely electronically based navigation system that integrates real-time navigational data from ship sensors (GPS, Radar, AIS, etc.) and electronic navigational charts (ENCs - Electronic Nautical Charts) [4-6]. In its nature, it is a centralizing instrument with the unique function of integrating many aspects of navigation. More explicitly, it allows the integration of numerous operational data, such as ship's course and speed, depth soundings, and radar data into the display. Furthermore, it allows automation of alarm systems to alert the navigator of potentially dangerous situations, and gives him/her a complete picture of the instantaneous situation of the vessel and all charted dangers in the area. ECDIS has been conceived in such a way to support and enforce the transition to the e-navigation concept.

Although the International Maritime Organization (IMO) officially approved it as the equivalent to the classical paper charts in November 1995, the transition to its full usage in practical maritime navigation is still slow. The causes are the lack of the official ENCs, the high cost of ECDIS, and a dose of skepticism in accepting this new technology by the traditional marine community. However, ECDIS has benefits in terms of time saving in route planning and monitoring, preventing accidents and thus protecting human lives, the ship and marine environment. ECDIS functions can be used effectively in restrictive waterway areas, during periods of poor visibility, i.e., under conditions of mist and during the night. In coastal waters it is generally very easy to derive the position with the view from the bridge windows, as well as with the information from other prime navigational devices. But, care must be taken to ensure that radar is always used as the primary collision avoidance aid and ECDIS as the primary charting aid. Some key components of ECDIS display, i.e., most of the visualized commands of ECDIS (on the exemplar of Navi-Trainer

- *Cross-track error*: set the distance to either side of the track the vessel can stay before an alarm sounds. This will depend on the phase of navigation, weather and traffic;
- *Safety contour*: set the depth contour line which will alert the navigator that the vessel is approaching shallow water;
- *Course deviation*: set the number of degrees off course the vessel's heading should be allowed to stray before an alarm sounds;
- *Critical point approach*: set the distance before approaching each waypoint or other critical point that an alarm will sound;
- *Datum*: set the datum of the positioning system to the datum of the chart, if different, etc.

Example 2: In this tutorial, the process of acquisition of the AIS (Automatic Identification System) target data (in manual, not in random mode of here employed ECDIS demo version) is also shown in the short video presentation. For the purpose of making AIS targets visible and selecting one of them, the AIS overlay command button must be pressed in the command panel in the upper right corner of the display. In the simulation panel the random button has to be switched off and certain available AIS target is to be selected and enabled. Its position can be controlled by inserting manually its coordinates and course, or by cursor, i.e., by positioning it directly at the proper place, along with the direction onto the chart panel (Figure 2). By following a similar procedure, it can be carried out acquisition of NAVTEX (Navigation Telex) messages.

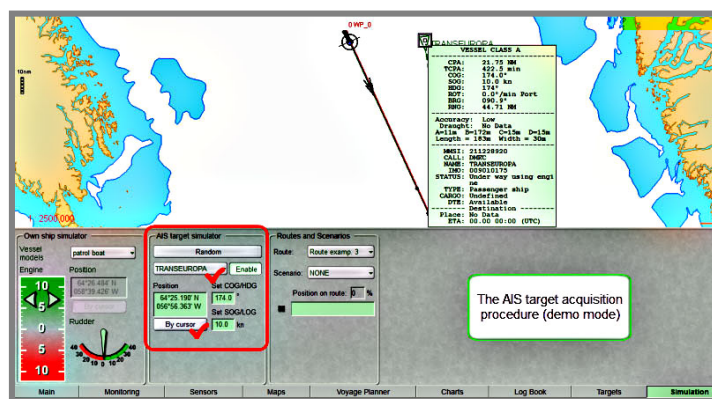


Figure 2. Acquisition of AIS data of a ship in the vicinity of the own ship [4-6]

3.1. Enhancing interactivity

The reader may get the impression that Camtasia Studio does not provide enough space to interact with the students. But still, there is a way that this lack of interactive dimension can “catch up”, and that is through the creation of self-evaluation tests for students. With the intention to approach the procedural level in Camtasia Studio for creating self-evaluation tests, it is to begin by using the options (Camtasia Studio ver.7): Tools => Quizzing ... => Add quiz ..., and then by using the options Move => Quizzing Tests may include the questions of the following types:

- Multiple choice;
- Fill in the blank; and,
- Short answer (which is not automatically scored).

Within one quiz, or self-evaluation test all these types of questions can be included and combined in different ways, depending of the instructional material and the teacher's conceive of that how the test should be. Immediately after answering the question, the students can get the score, and though check their knowledge about the topic(s), except in the third case.

4. CONCLUSION

The work gives two illustrative examples in terms of how Camtasia Studio (ver. 7) can be applied in the tutorials (post)production, for Moodle system, which is used to support the classical ex-cathedra teaching methods at the Faculty of Maritime Studies in the field of ECDIS. The examples are described in detail, in order to put the emphasis on the didactic component, since it is presumed that the technique functions well and provides the students with the appropriate audio/video experiences. The goal is to get learning materials of greater quality and inventiveness, available to the students even when they are on board a ship. It is important to note here, that a large number of students from the Faculty have to study and sail simultaneously.

Logically, at the end, we have to consider a question of further development of the system. First of all, the current version of Moodle which is used at the Faculty, i.e., ver. 1.94, is to be replaced by the advanced version 2.x. This is because in the present version of Moodle are noticed some problems, e.g., in working with Wikis. This is also necessary for ensuring greater flexibility and scalability of the platform.

Then, the possibilities of realizing MOOC courses [12-15], independently or in cooperation with colleagues from the country (region) and/or abroad, are to be considered. These courses would be beyond the framework of the narrow specialized maritime courses, and they should attract considerably larger number of users, of heterogeneous structure, e.g., within the context of lifelong learning.

These issues, i.e., potential opportunities for improving and expanding the existing blended environment at the Faculty of Maritime Studies, will be the subject of further research in this area.

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