

## TRENDS ANALYSIS IN MANAGING MARITIME E-LEARNING TECHNOLOGIES

RAICU GABRIEL

*Constanta Maritime University, Romania*

### ABSTRACT

During time few trends are fulfilled with current technology level. New technology achieved a high grade of interactivity since multiprocessing technology development. A large scale maritime 3D simulators and interactive users are now possible. eLearners will plan what, when, where and for how long at a time they will learn. With their input, the e-Learning system will organize the material they will learn and the way they will learn it based upon an assessment of their skills and their preferred learning modes. The roles and time required of classroom trainers and lecturers, and tutors will be greatly reduced.

**Keywords:** *LMS, maritime e-learning, lifelong learning, computer assisted learning.*

### 1. INTRODUCTION

Education encompasses teaching and learning specific skills, and also something less tangible but more profound: the imparting of knowledge, positive judgment and well-developed wisdom. Education has as one of its fundamental aspects the imparting of culture from generation to generation (see socialization). Education means „to draw out”, facilitating realisation of self-potential and latent talents of an individual. It is an application of pedagogy, a body of theoretical and applied research relating to teaching and learning and draws on many disciplines such as psychology, philosophy, computer science, linguistics, neuroscience, sociology - often more profound than they realize - though family teaching may function very informally.

Lifelong, or adult, education has become widespread in many countries. However, education is still seen by many as something aimed at children, and adult education is often branded as *adult learning* or *lifelong learning*. Adult education takes on many forms, from formal class-based learning to self-directed learning.

Lending libraries provide inexpensive informal access to books and other self-instructional materials. The rise in computer ownership and internet access has given both adults and children greater access to both formal and informal education. In Scandinavia a unique approach to learning termed folkbildning has long been recognised as contributing to adult education through the use of learning circles.

*Formal Education:-* the hierarchically structured, chronologically graded education system, running from primary school through the university and including, in addition to general academic studies, a variety of specialized programs and institutions for full time technical and professional training.

*Informal Education:-* The truly lifelong process whereby every individual acquires attitude, values, skills and knowledge from daily experience and the educative influences and resources in his or her environment from family and neighbors, from work and play, from the market place the library and the mass media.

*Non-Formal Education* - any organized educational activity outside the established formal system- whether operating separately or as an important feature of some broader activity that is intended to serve identifiable learning clientele and learning objectives.

### 2. EDUCATION TECHNOLOGY

Technology is an increasingly influential factor in education. Computers and mobile phones are being widely used in developed countries both to complement established education practices and develop new ways of learning such as online education (a type of distance education). This gives students the opportunity to choose what they are interested in learning. The proliferation of computers also means the increase of programming and blogging. Technology offers powerful learning tools that demand new skills and understandings of students, including Multimedia, and provides new ways to engage students, such as Virtual learning environments [1], [2].

Technology is being used more not only in administrative duties in education but also in the instruction of students. The use of technologies such as PowerPoint and interactive whiteboard is capturing the attention of students in the classroom.

Technology is also being used in the assessment of students. One example is the Audience Response System (ARS), which allows immediate feedback tests and classroom discussions. Information and communication technologies (ICTs) are a “diverse set of tools and resources used to communicate, create, disseminate, store, and manage information.” [3]

These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony. There is increasing interest in how computers and the Internet can improve education at all levels, in both formal and non-formal settings [4], [5].

Older ICT technologies, such as radio and television, have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries.

### 3. SPREADING E-LEARNING WORLDWIDE

Pedagogical elements are an attempt to define structures or units of educational material. For example, this could be a lesson, an assignment, a multiple choice question, a quiz, a discussion group or a case study. These units should be format independent, so although it may be implemented in any of the following methods, pedagogical structures would not include a textbook, a web page, a video conference or an iPod video.

When beginning to create e-Learning content, the pedagogical approaches need to be evaluated. Simple pedagogical approaches make it easy to create content [6], but lack flexibility, richness and downstream functionality. On the other hand, complex pedagogical approaches can be difficult to set up and slow to develop, though they have the potential to provide more engaging learning experiences for students. Somewhere between these extremes is an ideal pedagogy that allows a particular educator to effectively create educational materials while simultaneously providing the most engaging educational experiences for students [7].

The use of computers and the Internet is still in its infancy in developing countries, if these are used at all, due to limited infrastructure and the attendant high costs of access. Usually, various technologies are used in combination rather than as the sole delivery mechanism. For example, the Kothmale Community Radio Internet uses both radio broadcasts and computer and Internet technologies to facilitate the sharing of information and provide educational opportunities in a rural community in Sri Lanka.

The Open University of the United Kingdom (UKOU), established in 1969 as the first educational institution in the world wholly dedicated to open and distance learning, still relies heavily on print-based materials supplemented by radio, television and, in recent years, online programming. Similarly, the Indira Gandhi National Open University in India combines the use of print, recorded audio and video, broadcast radio and television, and audio conferencing technologies. The term "computer-assisted learning" (CAL) has been increasingly used to describe the use of technology in teaching.

### 4. VIRTUAL CLASSROOMS

Communication technologies are generally categorized as asynchronous or synchronous. *Asynchronous* activities use technologies such as blogs, wikies, and discussion boards. The idea here is that participants may engage in the exchange of ideas or information without the dependency of other participants involvement at the same time. Electronic mail (Email) is also asynchronous in that mail can be sent or received without having both the participants' involvement at the same time.

*Synchronous* activities involve the exchange of ideas and information with one or more participants during the same period of time. A face to face discussion is an example of synchronous communications. *Synchronous* activities occur with all participants joining in at once, as with an online chat session or a virtual

classroom or meeting. Virtual classrooms and meetings can often use a mix of communication technologies. In many models, the writing community and the communication channels relate with the E-learning and the M-learning communities [8].

Both the communities provide a general overview of the basic learning models and the activities required for the participants to join the learning sessions across the virtual classroom or even across standard classrooms enabled by technology. Many activities, essential for the learners in these environments, require frequent chat sessions in the form of virtual classrooms and/or blog meetings.

### 5. E-LEARNING EVOLUTION

The term e-Learning 2.0 is used to refer to new ways of thinking about e-learning inspired by the emergence of Web 2.0. From an e-Learning 2.0 perspective, conventional e-learning systems were based on instructional packets that were delivered to students using Internet technologies. The role of the student consisted in learning from the readings and preparing assignments. Assignments were evaluated by the teacher. In contrast, the new e-learning places increased emphasis on social learning and use of social software such as blogs, wikis, podcasts and virtual worlds such as Second Life. This phenomenon has also been referred to as Long Tail Learning

The first 10 years of e-learning (e-learning 1.0) was focused on using the internet to replicate the instructor-led experience. Content was designed to lead a learner through the content, providing a wide and ever-increasing set of interactions, experiences, assessments, and simulations. E-learning 2.0, by contrast (patterned after Web 2.0) is built around collaboration. e-Learning 2.0 assumes that knowledge (as meaning and understanding) is socially constructed. Learning takes place through conversations about content and grounded interaction about problems and actions. Advocates of social learning claim that one of the best ways to learn something is to teach it to others.

Distance education has long had trouble with testing. The delivery of testing materials is fairly straightforward, which makes sure it is available to the student and he or she can read it at their leisure. The problem arises when the student is required to complete assignments and testing.

Online courses have had difficulty controlling cheating in quizzes, tests, or examinations because of the lack of teacher control. In a classroom situation a teacher can monitor students and visually uphold a level of integrity consistent with an institution's reputation. However, with distance education the student can be removed from supervision completely. Some schools address integrity issues concerning testing by requiring students to take examinations in a controlled setting [9].

Assignments have adapted by becoming larger, longer, and more thorough so as to test for knowledge by forcing the student to research the subject and prove they have done the work. Quizzes are a popular form of testing knowledge and many courses go by the honor system regarding cheating. Even if the student is

checking questions in the textbook or online, there may be an enforced time limit or the quiz may be worth so little in the overall mark that it becomes inconsequential. Exams and bigger tests may be harder to regulate.

Used in combination with invigilators, a pre-arranged supervisor trusted with overseeing big tests and examinations may be used to increase security. Many Midterms and Final examinations are held at a common location so that professors can supervise directly. When the Internet became a popular medium for distance education many websites were founded offering secure exam software and packages to help professors manage their students more effectively.

In the relatively new LMS market, commercial vendors for corporate and education applications range from new entrants to those that entered the market in the nineties. In addition to commercial packages, many open source solutions are available.

In 2005, LMSs represented a fragmented \$500 million market. The six largest LMS product companies constitute approximately 43% of the market. In addition to the remaining smaller LMS product vendors, training outsourcing firms, enterprise resource planning vendors, and consulting firms all compete for part of the learning management market [10], [11].

## 6. MANAGING E-LEARNING TECHNOLOGIES IN MARITIME EDUCATION AND TRAINING AREA

Every European Maritime University must have a department which aims to provide practice-oriented technological information management and application-oriented research for making use of information systems in the field of naval and mechanical engineering.

To improve maritime education and training it has identified lack of access to quality learning material and tutors in many countries. In our opinion the increase using the information and communication technologies will be one major component for future quality improvement of maritime education and training. Since the introduction of computer based training (CBT) in some shipping companies since a decade, the use of internet has increased tremendously.

In Constanta Maritime University, applying knowledge management is important and we apply it effectively to achieve strategic objectives. We intend to encourage learning and innovation as sources of competitive advantage, to permit vision and gap analysis, identifies new sources of technology and ideas. Through Knowledge Management in our university we explore creativity and innovation [12].

Constanta Maritime University has begun E-learning in 2001, when first test distant learning was introduced. In 2004, massive investments in IT tool were made and one year later the first official CMU e-learning Campus was inaugurated.

Since 2007, in the CMU was developed a Web based IMO Tanker Courses under the EU project for distant simulation and tutorial systems on board. The new campus has the main project objective to coordinate the development of a maritime flexible learning system. Also, CMS ILIAS as KMS are developed to

support and enhance knowledge-intensive processes, tasks or projects of e.g., creation, construction, identification, capturing, acquisition, selection, valuation, organization, linking, structuring, formalization, visualization, transfer, distribution, retention, maintenance, refinement, revision, evolution, accessing, retrieval and last but not least the application of knowledge, also called the knowledge life cycle. You can see the practical approach in figure 1.



Figure 1 Web based IMO Tanker Courses

We use Moodle as Knowledge Management System; through will have an explicit Knowledge Management objective of some type such as collaboration, sharing good practice. Moodle is a Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a free web application that educators can use to create effective online learning sites.

A Learning Management System (LMS) is a set of software tools designed to manage user learning interventions. LMS go far beyond conventional training records management and reporting and the value added for it is the extensive range of complementary functionality they offer. Via internet and LMS the participants have access to the internal tests of different topics and the students can enrol themselves directly on the website [13], [14].

## 7. FUTURE MARKETS AND CONCLUSIONS

LMS buyers generally report poor satisfaction based on survey results from the American Society for Training and Development (ASTD) and the eLearningGuild. The ASTD respondents were very unsatisfied with an LMS purchase doubled and those that were very satisfied decreased by 25%. The number that was very satisfied or satisfied edged over 50%. (About 30% were somewhat satisfied.) Nearly one quarter of respondents intended to purchase a new LMS or outsource their LMS functionality over the next 12 months. eLearningGuild respondents report significant barriers including cost, IT support, integration, and customization. They also report significant effort to implement with a median of 23 months being reported

from requirements gathering to implementation for corporations with more than 2,000 employees.

Channel learning, is under-served. For many buyers channel learning is not their number one priority, according to a survey by TrainingOutsourcing.com Often there is a disconnect when the HR department oversees training and development initiatives, where the focus is consolidating LMS systems inside traditional corporate boundaries. Software technology companies are at the front end of this curve, placing higher priority on channel training.

Most buyers of LMSs utilize an authoring tool to create their e-learning content, which is then hosted on an LMS. Buyers, however, must choose an authoring tool that seamlessly integrates with their LMS in order for their content to be hosted. There are authoring tools on the market, such as Lectora, which meet AICC and SCORM standards and therefore content created in tools such as these can be hosted on an AICC or SCORM certified LMS.

## 8. REFERENCES

- [1] LOUTCHKO, IOURI; KURBEL, KARL; PAKHOMOV, ALEXEI: *Production and Delivery of Multimedia Courses for Internet Based Virtual Education*; The World Congress "Networked Learning in a Global Environment: Challenges and Solutions for Virtual Education", Berlin, Germany, May 1 – 4, 2002
- [2] PARKER, QUIN (2007-04-06). *A second look at school life*, The Guardian
- [3] DORVEAUX, XAVIER (2007-07-15). *Apprendre une langue dans un monde virtuel*, Le Monde. Retrieved on 2007-07-15
- [4] BROWN J.S & ADLER R, 2008, *Minds on Fire: Open Education, the Long Tail, and Learning 2.0*, Educause review, Jan/Feb 2008, pp 16-32
- [5] BLOOM, B. S., and D. R. KRATHWOHL. (1956). *Taxonomy of Educational Objectives: Handbook 1*
- [6] BÅÅTH, J. A. (1982) *Distance Students' Learning - Empirical Findings and Theoretical Deliberations*
- [7] BLACK, J. & MCCLINTOCK, R. (1995) *An Interpretation Construction Approach to Constructivist Design*
- [8] RAICU A, *Knowledge step in advanced materials – Polymeric Wikia*, The 6th edion of the International Conference Advanced Topics in Optoelectronics, Microelectronics and Nanotechnologies, 23-26 August 2012, ISSN 2067-158X, SPIE Organization
- [9] KARRER, T (2006) *What is eLearning 2.0?* <http://elearningtech.blogspot.com/2006/02/what-is-elearning-20.html>
- [10] DOWNES, S (2005) *E-Learning 2.0*. <http://www.downes.ca/post/31741>
- [11] F. SURUGIU, GH. SURUGIU, *Consumers Identity-The Role Of The 'Self' Concept In The Consumer Behavior*, Analele Universitatii Maritime Constanța vol. XVII, 2012
- [12] BROWN J.S & ADLER R, 2008, *Minds on Fire: Open Education, the Long Tail, and Learning 2.0*, Educause review, Jan/Feb 2008, pp 16-32
- [13] \*\*\* Cisco Expands Collaboration Support
- [14] \*\*\* Wikipedia, The Free Enciclopedia, <http://en.wikipedia.org>.