

# Information and Communication Technology (ICT) Training Application for MET Institutions

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**ABSTRACT:** Based on the technological initiatives among Maritime Higher Training and Education (MHET) institutions, this study explored the attitudes of academicians, senior lecturers and lecturers in Maritime Faculty of Istanbul Technical University toward information and communication technologies (ICT). The findings suggest that academicians, senior lecturers and lecturers have positive attitudes toward ICT in MHET institutions.

This study constitutes firstly the definition of e-learning with the existing advantages and their integration methodology to higher education institutions via by MHET application. Then training and education system based management are discussed with IT applications to clearly identify the e-learning communities into maritime education. The outcomes for the utilization of communication in MHET are proposed not only with full time training model but also e-learning concept. Consequently the opportunities of e-learning with MHET are proposed for enable the institutions to benchmark their existing applications.

## 1 INTRODUCTION

### 1.1 *General Information*

In our era, with the amazingly fast improvements being encountered with the communicative instruments, similar to those changes in many other fields, the structure of education and competition has also started to change. The improvements in the informative and communicative technologies, has brought out the demand for “global education.” The fast improvements in the area of informatics are continuing in many areas, especially in the fields of e-learning, e-trading, e-state.

In our day, whereas the global information is becoming two fold in every five-years, it is expected that this fast doubling will be taking place in 72 days in the year 2020 (STAUT, 2001).

## 2 HISTORY

### 2.1 *History of Learning From a Distance*

Learning through mails, which can be considered as the start of long distance learning, was a teaching method employed by a school or authorized institution, through mails.

In our day, international organizations like UNESCO, are still employing the learning-by-mail method in the developing countries.

In the development process of the distance education, instruments such as books, postal services, radio and television were used and the quality of education and its methods remain to be discussed.

## 3 DEFINITION

### 3.1 *e-Learning*

The new learning method arising in connection with the improvements made in the informative and communicative technologies, is called e-learning. This e-learning is a process having a vast field of implementations, encompassing computer based learning, web-based learning, virtual classes and the cooperation of numerical technologies (FACTS, 2000).

E-learning, is defined with:

- Web based instruction,
- Virtual education,
- Computer based distance education,
- Computer-mediated communications
- Internet education,
- Internet based/aided education,
- Online education

and similar concepts. Regardless of any concept being used in defining, e-learning is the most improved system in learning from a long distance.

The instructor, lecturing a course one-to-one to a group of students far away from the campus through the screen of a computer or the realization of the lectures on all the courses through internet and having participations maintained, can be defined as e-learning.

The Maritime Higher Training and Education (MHET) institutions, being in connection with the on going improvements in the informatics and communication technologies, should make benefit of

the e-learning model. However, before any implementation of the e-learning model, it is essential to designate the approaches of the instructors towards e-learning.

### 3.2 The e-Learning Advantages

Among the most important advantages of the e-learning model, is its capacity to create a virtual campus and provide an asynchronous education. In the e-learning model, the students are able to reach the content within the system at any time they would desire so and make benefit of the resources as much as they would want. This flexibility provided by the e-learning model, when incorporated with the advantages in costs, constitutes an ideal model (MEALY, 2000).

One of the most advantageous aspect of the distance education is its being Web based and interactive. The dimensions of the Web based education and what are desired and what are undesired, are given in Table 1 (MAJUMDAR, 2001).

Having the distance education achieve the desired quality, could only be made possible with the wide-spreading of internet, where the reciprocal influence could be maintained between adequate number of students-instructors, students-educational materials and with the internet being started to be used as an educational platform.

### 3.3 The models of e-Learning

The instructor, lecturing a course one-to-one to a group of students far away from the campus through the screen of a computer or the realization of the lectures on all the courses through internet and having participations maintained, can be defined as e-learning.

E-learning refers to the use of electronic devices for learning, including the delivery of content via electronic media such as Internet/Intranet/Extranet, audio or video tape, satellite broadcast, interactive TV, CD-ROM, and so on (KAPLAN, 2000). This study is focused on web-based e-learning, which is conducted using the internet (or Intranet/Extranet) and web technologies. This type of learning places a greater emphasis on the enabling or facilitating role technology plays in data, search and transmission, interactivity, and personalization (PICCOLI, AHMAD & IVES, 2001).

The teleconference meetings using the internet web, electronic mails replacing the traditional mails, electronic books and periodicals creating an alternative to printed resources, are models of the elements of internet based education from a distance. Among these models, the most widely used model in our day, is the *web-based e-learning*

*system.*

Table 1. The Dimensions of Web based education and what is desired and undesired in this education

<i>Dimensions</i>	<i>Desired</i>	<i>Undesired</i>
Educational ased	Instructive	Constructive
Learning focused	Content	Teach learning
Learning strategies	Interactive	Collaborative and interactive
Learning target	Exterior controlled	Autonomous
Learning concept	Behavioral	Informative
Instructor's role	Authoritarian	Assisting
Distribution odes	Stable	Clear
Learning approaches	Facial	Immersive
Learning structures	Concrete	Flexible/Modular
Teaching models	Teaching centered	Learning group centered
Teaching targets	Data transferring	Mental model changing
Learning methods	Passive	Active

The web-based distance education system is a teaching system containing many functions in it self. In this system, the contents of the courses being within an electronic medium is not enough.

Although the e-learning is named to be the learning system of the future, it is still debatable whether it will be able to replace the in-campus education. Because, the expected number of participation in the e-learning having only reached up to 15% (ZHANG, 1999) is the result of these debates not having arrived at a conclusion.

## 4 E-EDUCATION MANAGEMENT SYSTEMS

### 4.1 *Web-based e-Education Management Systems in Maritime Education*

The web-based e-Education management systems, on many topics, such as in preparation of the contents of the courses, record keeping of the student registrations, the utilization hours of the system, the frequency in using the system, assignment of home-works, transmission of the home-works, conducting examinations, prompt evaluations of the examinations, to conduct public polls, to see the results of the polls right away, satisfaction analysis, help to make statistics.

Due to the web-based distance education methods system, many data, such as the success status of the students, can be obtained through the system or may be transferred into the internet medium. The fundamental characteristics the web-based e-training

systems should possess, depending on the system's scope and target, may sometimes show variations. However, the e-training systems, generally, should contain the following functional lines.

1. Defining and administrating the users.
2. Preparing the contents of the courses.
3. Management of the courses.
4. Opening of special programs for the student.
5. Assignment of home-works and projects and their delivery.
6. Preparation of exams and tests and their implementations.
7. Observation and studying the attitudes of the students.
8. Evaluation of the success status of the students.
9. Creation of interactive communication mediums and their administration.

In our day, the number of personal computers, their saving capacities, and the processing speeds of the computers have shown a great increase.

Table 2. The hierarchy structure for evaluating WELS (SHEE, WANG 2006). Revise by KADIOGLU 2007

<i>Goal</i>	<i>Dimensions</i>	<i>Criteria</i>
<b>The Evaluation of Web Based Electronic Learning System (WELS) Alternatives</b>	<b>D1 Learner Interfac e</b>	<i>C01 Ease of use</i>
		<i>C02 User-friendliness</i>
		<i>C03 Ease of understanding</i>
	<b>D2 Learner Community</b>	<i>C04 Operational stability</i>
		<i>C05 Ease of discussion with other learners</i>
		<i>C06 Ease of discussion with teachers</i>
		<i>C07 Ease of accessing shared data</i>
	<b>D3 System Content</b>	<i>C08 Ease of exchanging learning with the others</i>
		<i>C09 Up-to-date content</i>
		<i>C10 Sufficient content</i>
		<i>C11 Useful content</i>
	<b>D4 Personali zation</b>	<i>C12 Storage content</i>
		<i>C13 Capability of controlling learning progress</i>

#### 4.2 Computer Applications

We can classify the computer applications employed in the e-training under four topics, such as: computer aided instructions (CAI), computer monitored instructions (CMI), computer monitored communications (CMC) and computer monitored multimedia.

Whereas the computer webs, following the years 1990's, have improved tremendously till our day. With the data exchange over the web with such improvements, great hopes have become vested into distance education which we have named e-Learning. E-Learning is an interactive method which eliminates the time and distance problem in reaching the students.

The most powerful and the most widespread computer web is the internet. Whether a certain profit is envisaged or not, the colleges, universities, schools, companies and public have come to use the internet web. The problem of time and distance in the E-Learning process are being overcome with the internet web.

In e-Learning, the communication between the student and the lecturer is maintained in two ways; these being realized as Synchronized and A synchronized communications.

In maintaining the correspondence through the internet, we make use of the e-mails, the Usenet and Listserv which we can consider as a bulletin board, www's and multimedia applications, correspondence and conversation (talk) programs and other opportunities.

Improving the computer web and digits being used for e-Learning is highly expensive. To create a web with the purpose of establishing an e-training medium or to purchase software's for the same purpose are really costly.

In a study carried in the USA, it was observed that many educational institutions have encountered considerable losses in the e-learning applications. But the e-learning model being still popular in our day and the educational institutions continuing to invest into e-learning, is based on the fundamental reason that these investments being considered by the investors that they will bring big profits to the investors in the future. Besides this, the education being independent of time and location are important factors.

#### 5 PRINCIPLES OF FORMING E-LEARNING COMMUNITIES IN THE MARITIME EDUCATION

Unless the possibilities in the face-to-face education provided to the student be also availed to the student in the e-learning, the e-learning will not be preferred in the ratio desired.

Because, the students do not learn only by realizing the activities prepared for them in advance. These reciprocal influences do also create positive effects on the students in their learning realized within the class-rooms. Based on this reason, the possibility of being a community availed to the

students in the face-to-face education, should also be availed in the on-line education (BAUMAN, 2002).

The e-learning communities, is the basic condition in the realization of e-learning. The institutions providing or planning to provide e-learning, are obliged to create e-learning communities and maintain their continuation (PALLOFF&PRATT, 1999).

The more the feeling of being a member of community is strong, the more higher will be the satisfaction obtained from information sharing and its flow between the learners, the faith in the targets, the satiety reached in cooperation with the members and results obtained through team working (WELLMAN&GULIA, 1999).

Among the learners, where the feeling of being a member of the community is strong, the feeling of refraining from requiring support diminishes accordingly.

In forming a successful e-learning community and maintaining its continuity, the principles which require to be taken into consideration can be defined as follows (BAUMAN, 2002).

- establishing frequent communications,
- entering into clear interactions,
- creating an area for the out-of-class interactions,
- utilization of instruments to make interactions easy,
- directing the interaction from a side,
- observing the creative learning approaches,
- consideration of supporting systems.

For the success of e-learning communities, other principles can be added onto those listed above. However, the thing that is being tried to create with all these principles is a reciprocal influence medium wherein these will have a meaning for the learners and feel comfortable and important. The creation of such opportunities plays an important role in the development of academic and social competencies.

## 6 UTILIZATION OF COMMUNICATION TECHNOLOGIES IN THE MARITIME EDUCATION

Due to various reasons, such as the period of time being too long in the maritime education, the comprehension of some knowledge being very difficult, and the full time practical training not always being possible to be maintained on marine vessels, the employment of the techniques of informatics is inevitable.

With the employment of the techniques of informatics in the maritime education, from keeping the course notes in an electronic medium up to

shortening the process in making a right decision by the end of having visually created and gone through one or more incidents, which could be very complicated and/or have never been lived, with help of visual reality and simulators. By changing one or a few or all of the factors affecting the incidents, new scenarios may be created. Moreover, thanks to various animations and special effects, these incidents may be created almost similar to their actual.

Within this context, we can list the samples of informatics techniques used in maritime education as follows:

- Keeping of the course notes in an electronic medium
- Keeping of the pictures and drawings in an electronic medium
- Animations of various incidents and attempts being utilized
- Utilization of the videos of various incidents and attempts
- Making benefit of the multimedia educational materials
- Utilization of interactive training programs
- Realization of web-based training
- Realization of maritime education through telecommunication
- Making benefit of visual reality applications
- Utilization of the simulators

The Maritime Higher Training and Education (MHET) institutions, being in connection with the on going improvements in the informatics and communication technologies, should make benefit of the e-learning model. However, before any implementation of the e-learning model, it is essential to designate the approaches of the instructors towards e-learning.

## 7 CONCLUSION

The improvement of the distance education is only possible with the existence of new brains, grasping the new technologies and putting them into use, instead of watching the technological improvements in fright.

On the other hand, the investments of the educational institutions into the technology, their expenditures for the technological products and their attitudes towards the issue of distance education, will determine the future of distance education.

For the e-learning to become the educational system of the future, it certainly requires the student to increase his/her success by making benefit of all the varied possibilities being availed for his/her usage.

For the students being able to achieve productive

results from computer education, they really require to be perfectly motivated and be sufficiently informed and thoroughly experienced in computers.

In the e-learning, the importance attributed to the activities organized to develop the feeling of being a community, should at least be as much as the importance relied on activities employed to transmit the contents of the issues.

Availing opportunities for the learners to enter into a reciprocal interaction among themselves or with the lecturers or guest specialist, will provide the development of being a member of the community. Thus, instead of expecting the knowledge to be availed from a lecturer alone, online communities which search and discover knowledge in collaboration with the other members and lecturers, may be developed.

The e-learning, the more it will attribute importance into organizing the learning communities and rely on principles therein, with creative approaches relevant to the learning activities realized in these communities, will remain to be effective, attractive and productive.

It is inevitable that the students participating in the e-learning process should be trained in using the educational management system.

The students making effective use of the educational management system in e-learning, will positively effect the success expected to be received.

The e-learning in the area of maritime education, should also be able comply with the needs for receiving the satellite data, their being updated and evaluated.

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