

# ***Teacher's Role in a Changing Education. A Case Study of Asynchronous Education at Technological Education Institute (TEI) of Crete***

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**Abstract.** *In the framework of this research we are trying to discuss and analyze the use of asynchronous education at TEI of Crete. Our main aim is to provide elements about the lecture's role by using asynchronous e-teaching systems. We investigate the potential of Computer-Mediated Communication in education and our analysis highlights the lecturers' opinion for the re-definition of the educational process through modern ICT infrastructures. Among the first conclusions are the overturning of the relation teacher-student and the distinguished role of the pedagogical framework for the effective exploitation of asynchronous education in an institution of tertiary education.*

**Keywords.** Asynchronous education, ICT, CMC, Knowledge Society, ODL, Role, Teacher, LMS

## **1. Introduction**

According to Turkle [16] computer is more than a tool because we are able to step through the looking glass and we are learning to live in virtual worlds. Applications of Information and Communication Technologies (ICT) in the educational process usually require a different teaching environment than the traditional classroom. One of the most important features of the learning process with ICT is to have the ability to transform the information obtained from learning process into specific knowledge [3]. ICT is not only bringing changes to the world we live in, but also transmorms the way we can learn, opening new gateways to information [6]. Society is evolving rapidly and education becomes inevitably a life long learning activity. Time and space flexibility influence the school organization as an institution and as a system. On-line resources offer new possibilities and challenges to teachers of all kind of disciplines. Consequently, the access to

knowledge and to learning process depends on the conventional definitions of time and space less and less. Remarkable colloquies are developed about Open and Distance Learning (ODL) in the new information society era, which concern among others and the tutor. In ODL the instruction could be either "synchronous", meaning that the communication between tutor and learner is simultaneous (real time), or "asynchronous" which means that the student is able to interact at any time, without tutor's presence. The ODL instruction could also be based on a mixture of the above two modes.

The process of changes in the traditional and some times conservative educational practices is not clearly pre-described and modern educator's participation is much more important now [2], [6]. Significant changes take place in the level of provided knowledge and the emerging of innovative methodologies about the new educational process, seems compulsory [14]. All these create a different educational environment indicating ODL as an essential tool for the future [3], [6], [14]. Major part of this research constitutes the different perspectives that emerge for the optimization and the readjustment of the traditional educational process.

## **2. Theoretical framework**

ODL appears to be as a value-added network service. Internet is considered to be a viable distance-independent educational vehicle, used by various institutions, providing capabilities to integrate existing and emerging technologies [10]. Morris and Ogan [12] argue that a new communication technology such as the Internet allows scholars to rethink, rather than abandon, definitions and categories. There is no doubt that distant learning environments are spreading rapidly in all sectors of education opening up an extraordinary variety of potentially useful educational possibilities.

In recent years, Computer-Mediated Communication (CMC) systems like the

platform of asynchronous education studied in our research, have begun to capture the attention of scholars from a wide variety of disciplines and are used for educational purposes. With the continuing growth of student population, institutions and tutors are looking for techniques to improve efficiency of materials and assessment.

CMC systems are believed to have powerful effects on social relationships [8]. In CMC in education the situation is neither the classical written nor traditionally spoken communication [14]. Online learning environments for synchronous or asynchronous education provide potential for new forms of collaborative work and reduce barriers of time and distance.

Many authors have noted that CMC technologies enable user interaction on a larger-scale than was previously possible via face-to-face group meeting [2], [4], [7], [14], [17]. In this kind of communication, all the users must have equal access to the communication space; and interaction should be one of the most important activities in a well-designed distance education experience.

Wellman and Gulia [17] note that CMC accelerates the way in which people operate and increase the range of social networks creating a new social form, the network society [3]. When a computer network connects people, it is a social network, which is a set of people (or organizations) connected by a set of socially-meaningful relationships [18]. Communities created by this kind of mass medium can often be viewed as an enigma in traditional, rational and economic terms [3].

Steinfeld [15], in one of the first papers about the influence of ICT in education argues that computer conferencing can facilitate information transfer among academics and researchers, helping to foster and maintain “invisible colleges”. Today’s platforms, concentrating on the need for collaborative learning can be called 3<sup>rd</sup> generation learning platforms [9]. These approaches try to focus on social and individual aspects of learning as well as providing electronic content in a learning community.

The notion of a learning activity in virtual learning environments refers to something richer than in individual courseware, closer to the notion of project [4], [5]. For Dillenbourg and Jermann [4], virtual learning environments do not only integrate a variety of software tools but also integrate all the physical tools that can be found in a classroom. Very often the classroom

management involves a complex set of interactions which can be further complicated for the teacher by the addition of unfamiliar technology [13]. Adapting student-oriented approaches to the online environment has required the development of new skills and changes to teaching practices. However, the transition to online teaching and learning presents new challenges as the roles of both teachers and students emerge in these modern learning environments.

### 3. Methods and samples

In the framework of this study we are trying to analyze the use of asynchronous education platform at TEI of Crete. This platform provides tools for setup, operation and administration of remote courses. It is based on the open software “Classroom On-line” (claroline) originally developed at the Université Catholique de Louvain (UCL) and it is supported by the non-profit organization Greek Universities Network (GUnet).

This particular platform gives to the lecturer the ability to organize his educational material and present it in various media through the network. Students can remotely access the digital content and submit their assignments. Additionally, the platform supports synchronous ways of communication and interactivity, which is the condition of communication for the users [14]. It is a typical [9] asynchronous tele-teaching platform and authorized users can access it at <http://eclass.cs.teiher.gr> web address.

This environment of asynchronous education at TEI of Crete studied in our research also named as “e-class” (Figure 1).

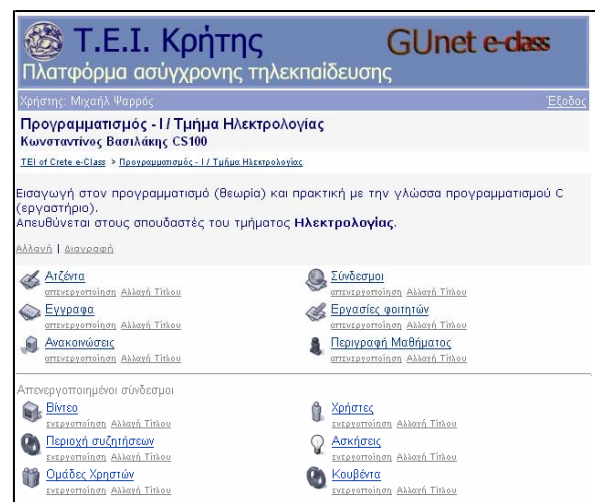
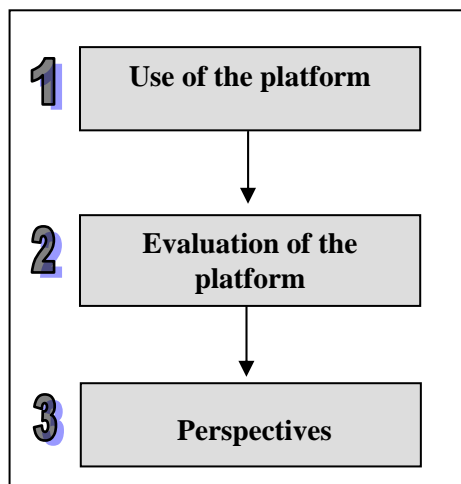


Figure 1. E-class user interface

One of the main aims of the present empirical research is the study and the characterization of the potential modulated lecturer's role by using asynchronous education systems. It is a case study with a direct contact with the participants (lecturers). Major part of this research constitutes the different perspectives that emerge for the optimization and the readjustment of the traditional educational process. Our methodological tools are constituted by 16 questionnaires and 6 semi-structured interviews with the teachers-users of the system. Obviously, this sample was not representative of all teachers at TEI of Crete, but it is quite enough for the tutor-users of the system (totally 25). All the data collection was accomplished during an academic semester.

The main questions of our research deals with: (a) teacher's attitudes in an ODL environment, considering their previous conventional educational experience, (b) the tutor's profile through ODL environments and the teacher's role that emerge, (c) the importance of the ODL material, (d) the advantages - disadvantages of an e-learning system, in terms of creating flexible virtual learning environments, according to the institution's tutors opinions, (e) the evaluation and critical approach of services provided to students by an ODL platform and finally, (f) the inquiry of tutor's perspectives and proposals about the specific Learning Management System (LMS).

The structure our questionnaires and our interviews, is based in the schema in Figure 2 and constitutes of 3 selected thematic axes. Those are: (a) platform use, (b) evaluation aspects and (c) perspectives.

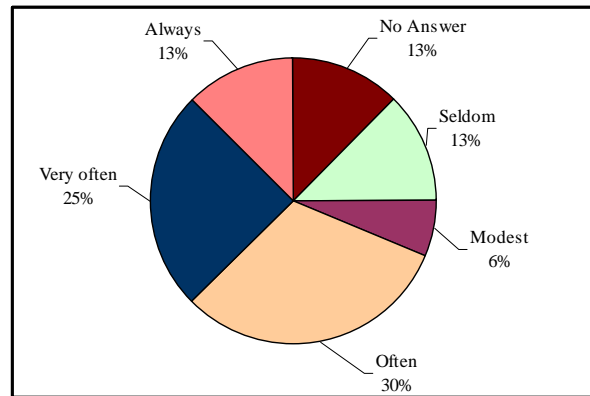


**Figure 2. Axes of analysis**

Our results were based on both qualitative and quantitative approaches [1], [11] analyzing the roles and attitudes of the lecturer, as they are modulated by a distant learning environment.

#### 4. Global analysis of results - discussion

Starting with the 1<sup>st</sup> thematic axis concerning the frequency of use of the system and its facilities is rather satisfactory and it is depicted in Figure 3.



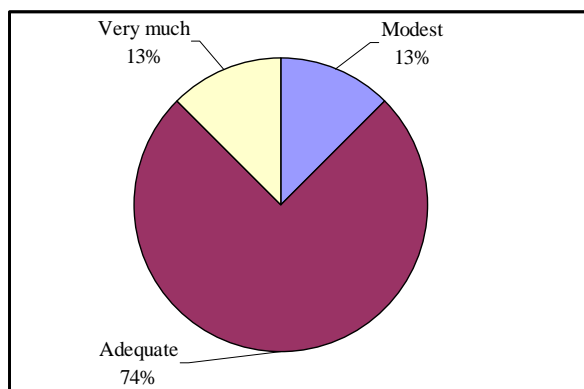
**Figure 1. Frequency of platform use**

One of the first conclusions of our research is the overturning of the relation teacher-student (platform's users). The educational process is transferred at the student's space, without the presence of the tutor which is a major advantage of the remote educational systems. In such environments, according to the sample of our research, the lecturer acts rather as consultant, in addition to his traditional duties. Teacher also has to further encourage and support the student during such educational process.

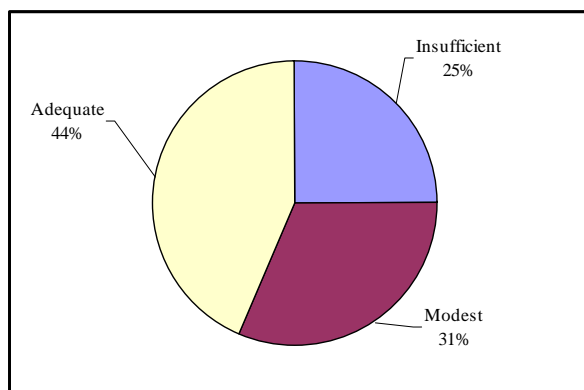
The role of the lecturers at the e-class platform of TEI of Crete seems complicate and demanding simultaneously. They often need to spend most of their time and creativity to satisfy the new requirements. The active participation and co-operation of lecturer and student are also major issues in the asynchronous environment of distant learning for the teachers of our research. Our analysis of the questionnaires points out the lecturers' opinion for the re-definition of the educational process as a main need for the student progress. Platform's lecturers consider that they are more active, instructional and productive in the asynchronous education environment, although they do not fully exploit it.

In the 2<sup>nd</sup> axe of analysis, teachers argue that today tutor's role must meet the challenges assigned by the knowledge society. One of the greatest challenges is to incorporate effectively ICT applications in class. It is remarkable that the teachers of our research do not feel that they are loosing control over the learning process in the ODL environment. They cooperate with their students in the asynchronous education platform but they do not perceive it as a replacement of the instructor. Instead, they view it as an additional resource for students. Distant learning environments for the teachers of our study offer the ability to show their work to a wide audience. For them, in a way, publishing online is an extra motivating factor. Additionally, it is an easy way to have huge impact and large audience in a distant learning environment.

Most tutors offer more than one course through the LMS and they use the platform very often. However, they do not consider the system as the fundamental teaching tool. They rather think that such tools are useful as subsidiary means of teaching (Figure 4 & Figure 5).

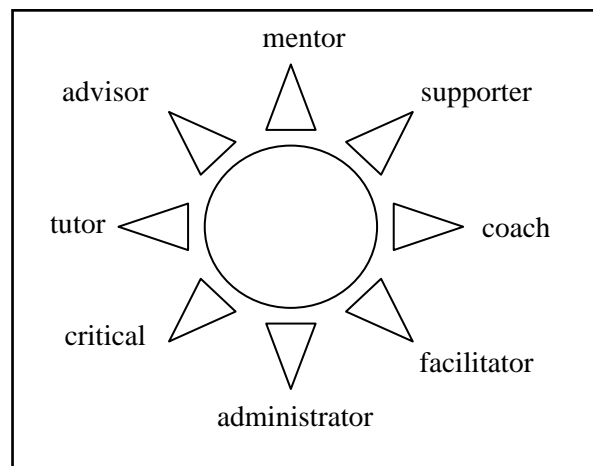


**Figure 4. Platform as a subsidiary teaching tool**



**Figure 5. Platform use as fundamental teaching tool**

Important questions have been raised about the new roles assumed by teachers when they use distant learning environments [6], [7]. They seem to develop a new image for their job with more responsibility on the students' part. The teacher's role in distant education is changing. Figure 6, summarizes the teacher's roles through the distant learning environment studied in our research.

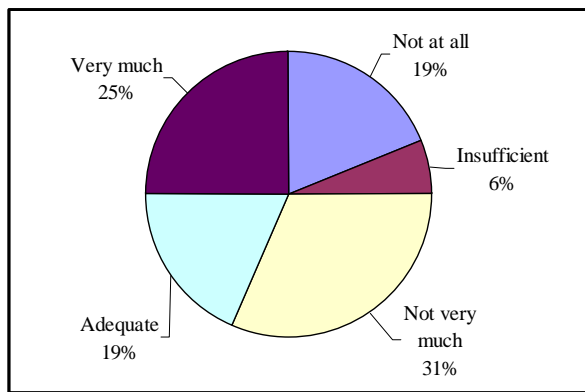


**Figure 6. Teacher's role**

ICT are often associated with changes for students and this has an inevitable impact on the potential teacher's role. ODL seems to be the vehicle for teachers to carry out major changes in the teaching process. Additionally, it opens new possibilities for interaction and relationships between students and teachers. The quality of the teaching-learning relation highly depends on pedagogical characteristics and on pedagogical context of the platform. In particular, for the teachers of our research the use of e-class can help those students whose style of learning is conducive to the independent, providing an option to "go to school".

Regarding teacher's profile in an ODL environment and considering the new roles that emerge, teachers argue that they are more active and creative. They also argue that educational material and pedagogical framework in an ODL environment are crucial.

On the other hand, teachers do not agree on the student stimulus and participation as depicted in Figure 7.



**Figure 7. Students active participation**

Among the advantages teachers mentioned, are the flexible publication, the effective management and the convenient update of the educational material. Two important positive components of ODL are: (a) the evolution to more active teachers and (b) the continuous structure of the educational material. Many teachers of our sample complained for the additional time required for the management and the updating of their e-courses. They also mentioned that they received students' complains about the lack of network facilities generally. Finally, they consider satisfactory the specific LMS tools.

To improve the LMS teachers of our sample propose: (a) its enrichment with synchronous tele-education services, (b) diversity in educational scenarios, (c) variety methods in student assessment. They also point out the necessity of uninterruptible and reliable operation of the system and the operation of a helpdesk service.

## 5. Perspectives - Conclusions

It is our position that pedagogy can be crucial in any type of teaching activities and as such is always in the heart of any application of educational innovation [7]. According to the answers on the 3<sup>rd</sup> axe of analysis, an online teacher must create a coherent learning experience for students and develop new support strategies that maintain motivation and encourage interaction.

However, the use of ICT is not a panacea for education. As note Mazzarol et al. [10], who conducted a survey of 315 education institutions in five countries, concluded that the use of virtual classroom to fully support and deliver high-quality education is yet to be fully proven.

They also argue that the need for regular face-to-face interaction is likely to remain.

According to the teachers of our research while interacting with information (either through human or non-human resources), students construct their knowledge. Interactions such as reading, highlighting, manipulating, evaluating, or discussing new information during formal instructional sessions or informal activities, engage learners in constructing these representations [6], [7]. Teachers argue that online courses that integrate learning engagement with resources and social interactions are therefore much more likely to enhance learning.

The teachers of our survey consider that pointing the students via web-resources or online lecture notes is not enough. Understanding the course content, the online educational environment requires learning activities (tasks) to engage students with the material. They believe that when developing an online course, instructors need to think about the instructional challenges and learning objectives specific to their courses and then introduce tasks to help students meet the learning objectives and overcome the instructional challenges.

We argue that further research is required to understand the roles and the demands of students and to find out the conditions in which students are less dependent on teachers. In parallel, with uses of ODL environments, we ought to study more deeply the complex pedagogical issues involved in the uses of ICT.

Prospective teachers and faculty alike are to make the shift from learning to use technology to using the technology for learning [5], [7]. As well as the process of acquiring the skills to use the medium effectively, students must also learn to learn [3]. Thus, a new learning process can be created in a new context taking into consideration social aspects of learning and support a feeling of commitment to the group in an asynchronous education system. The development of distant learning should be followed closely because it could be the basis of the development for the education in the information era.

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## 7. References

- [1] Bardin, L., *L'analyse de contenu*. Paris: PUF; 1997
- [2] Baron, A., *Designing Web-based training*. 1998; 29(4):355-370
- [3] Castells, M., *The Internet Galaxy*. Oxford: Oxford University Press; 2002
- [4] Dillenbourg P. and Jermann, P., *Internet au service de l'innovation*. In Guir R. (Ed), *Pratiquer les TICE. Former les enseignants et les formateurs à de nouveaux usages*; Bruxelles: DeBoeck; 2002; p.179-196
- [5] Henri, F. and Lundgren-Cayrol, K., *Apprentissage collaboratif à distance*. Canada: Presses de l'Université du Québec; 2001
- [6] Kalogiannakis, M., *A virtual learning environment for the French physics teachers*. *Education and Information Technologies*; 2004; 9(4):345-353
- [7] Kalogiannakis, M., *Réseaux pédagogiques et communautés virtuelles: de nouvelles perspectives pour les enseignants*. Paris: L'Harmattan; 2004
- [8] Kollock, P. and Smith, M., *Managing the virtual commons: cooperation and conflict in computer communities*. In Herring, S. (Ed.), *Computer-Mediated Communication: Linguistic, Social and Cross-Cultural Perspectives*; Amsterdam: Benjamins; 1996. p.109-128
- [9] Laister, J. and Koubek, A. *3<sup>rd</sup> Generation Learning Platforms. Requirements and Motivation for Collaborative Learning*. *European Journal of Open and Distant Learning*; 2001  
<http://www.eurodl.org/materials/contrib2001/icl01/laister.htm> [05/05/2005]
- [10] Mazarol, T., Hosie, P. and Jacobs, S., *Information technology as a source of competitive advantage in international education*. *Journal of Information Technology for Teacher Education*; 1998; 7(1):113-130
- [11] Miles, M. and Huberman, M., *Analyse des données qualitatives*. Bruxelles: De Boeck; 2003
- [12] Morris, M. and Ogan, C., *The Internet as mass medium*. *Journal of Computer Mediated Communication*; 1996; 1(4):39-50
- [13] Newton, L., *Data-logging in practical science: research and reality*. *International Journal of Science Education*; 2000; 22(12): 1247-1259
- [14] Rafaeli, S. and Sudweeks, F., *Interactivity on the Nets*. In Sudweeks, F., McLaughlin, M. and Rafaeli, S. (Eds.), *Network and Netplay: Virtual groups on the Internet*. Cambridge-Massachusetts: MIT Press, 1998; p.173-190
- [15] Steinfield, C., *Computer-Mediated Communication Systems*. *Annual Review of Information Science and Technology (ARIST)*; 1986; 21: 167-202.
- [16] Turkle, S., *Life on the screen, identity in the age of the Internet*. New York: Touchstone; 1997
- [17] Wellman, B. and Gulia, M., *Net surfers don't ride alone: virtual communities as communities*. In Smith, M. and Kollock, P.; *Communities in cyberspace*; London-NY: Routledge; 1999; p.167-194
- [18] Wellman, B., *An Electronic Group is Virtually a Social Network*. In Kiesler, S. (Ed.), *Culture of the Internet*. New Jersey: Lawrence Erlbaum; 1997; p.179-205