

# An Introduction to e-Learning Communities

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**Abstract.** This article provides an overview of online Learning Communities (or E-Learning Communities) with an emphasis on Dynamic Learning Communities. Members of a Learning Community can be students, teachers, tutors, practitioners and experts who have a common interest in a specific field of knowledge and area of learning, with no geographical and physical limitations. After an analysis of the concept and structure of an E-Learning Community we explore Dynamic Learning Communities and provide information regarding the rationale for their development and use, the services and tools that they provide and their design and management. Moreover we comment on the problem that is most commonly encountered in a Dynamic Learning Community, namely how to capture members' interest and induce their active participation in the community. We conclude this article by proposing some practical and technical solutions to the above issues.

## 1 Introduction

According to [12] "A virtual community is first of all a social entity. It is a number of people who relate to one another by the use of a specific technology. In a traditional society we often see communities as something evoked by geographic closeness (village, neighborhood, town, etc.) or organizational belonging (schools, churches, sports, hobbies, etc.)". Klang and Olsson in [12] speak about the role of "technology", today, a virtual community using technology constitute an online virtual community. A definition offered in [16] confirms our view on this point: "Virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace".

In the field of education, virtual communities help create learning communities. Learning communities are dedicated to a process of learning, through online courses and distance learning programs, with a study workplace that provides knowledge (through e-books, links etc). A Learning Community consists of users and tries to cover their common needs, interests and goals, in specified areas of informing-learning-education [8], but above all it is a community whose members share a consensual goal to support each other in learning. Members of a learning community can be students, teachers, tutors, practitioners and experts who have a common interest in

a specific field of knowledge and area of learning, with no geographical and physical limitations.

E-Learning Communities (ELC) were initially created and are indispensable, because they can effectively deal with problems one often encounters when involved in informing, learning and educational processes. The problems entailed in traditional educational processes are [8]:

<b>Money</b>	Total amount of payment (registration, fees)
<b>Time</b>	Free time in the middle of the day
<b>Distance</b>	Ability to move to the city where the school is located

A special and rapidly evolving ELC category is DLC (Dynamic Learning Community). DLC addresses the needs of those supporting the idea of open and distance learning, offering a specter of additional services in an integrated and comprehensive educational environment. This learning environment supports and emphasizes on the concept of interaction, which allows students to satisfy their learning and educational needs in a dynamic and flexible process, which constantly adapts and evolves according to the needs and demands of its users.

The present study will present the services offered by ELCs and will address the problems usually associated with and threatening the existence of such communities. The final part of the study will set out the authors' views on the appropriate methods and solutions of the said problems, in order to ensure the successful and effective operation of this flexible, accessible, modern and dynamic model of open and distance learning.

## 2 Defining the Objective and Content of the Learning Community

In the wider environment of Open and Distance Learning, Open Universities are usually the institutions offering a plethora of well-organized curricula, supported by complete bibliographies. The e-learning community has no intention of substituting such traditional and well organized educational institutions, but rather to support and reinforce them, by undertaking specific and limited aspects of the learning and – primarily- informing processes. In this context, it specializes either in serving the communication and educational interaction of the members of an Open University, or in offering preliminary informative and focused programs of learning and information, whenever necessary. Its aim is to ensure that students are able to pursue -without problems- the successful attendance of the various university courses. More specifically, ELC offers a variety of comprehensive web-based services to its members through direct (synchronous) or indirect (asynchronous) communication, aiming at:

- Allowing self-learning and constant learning for its members, using organized curricula of a primarily limited scope in terms of courses, in the wider context of Open Universities (Open-Distance Learning)
- Provoking, promoting, encouraging, monitoring and supporting the exchange of ideas between its members on educational issues selected by the members themselves, by organizing the appropriate Chat and Forum services.

- Monitoring the active participation of all community members, supporting member involvement by answering to all questions posed on-line.

To meet its aims, an ELC develops, organizes, maintains and constantly updates a comprehensive Data Base and Library, both of which can be used by members, in order to ensure the unhindered, easy and direct meeting of its educational aims and the constant, up to date and direct flow of information on issues of interest to its members. It also provides its members with educational interest Groups and contributes in covering their educational demands, by appropriately organizing, monitoring and supporting the aforementioned Groups.

An E-Learning Community is based on and characterized by the on line communication of its members, through chat and forum discussions, questions-answers and participation in collaborative learning, and by permitting the contact of its members with the teaching staff via e-mail, teleconferences and virtual class rooms.

Members complete the curriculum, always with the use of the internet, by presenting specific tasks, in the form of either independent projects, or by using suitable and carefully selected and organized questionnaires: survey questions, interview questions, etc.

### **3 Who participates in a e-Learning Community and Why**

People interested in participating in the educational or informative learning processes offered by traditional institutions (organized College and University departments, Institutes, etc.), have to meet the following requirements: adequate financial resources, time and physical presence. Those who are unable to meet these requirements are potential members of the e-learning community. Other potential members include people who are interested in informative or short-term but intensive educational services, which do not require them to leave their place of work or residence.

With regard to the aforementioned special ELC category, the DLC (Dynamic Learning Community), there is still of course a supervisor, but, contrary to the traditional (education institutions) or virtual (distance learning) educational model, the DLC limits his/her role to a simple adviser-supervisor and coordinator of the learning process. This process is organized, implemented and completed under a status of equality among members.

DLC are groups of people who form an LC characterized by the following [20]:

- Distributed control
- Commitment to the production and sharing of new knowledge
- Flexible and negotiated learning activities
- Autonomous community members
- High levels of dialogue, interaction and collaboration
- A shared goal, problem, or project that brings a common focus and incentive to work together

The source of knowledge and learning is the appropriate, comprehensive and constantly updated bibliography (books, papers, publications, researches, etc.) in multimedia form, stored at a database. All members of the ELC have direct access to the

database and are able to use it under the supervision and guidance of the tutors, satisfying their learning needs and demands. The DLC classifies member categories in a complete, updated and detailed database according to the following set of criteria:

<b>Position-capacity</b>	Casual Visitors Trainees Educators Supervisors Coordinators-Administrators
<b>Age</b>	
<b>Place of residence</b>	
<b>Interests</b>	Educational issues Various cognitive fields
<b>Knowledge Level</b>	Beginners Advanced Good knowledge of relevant fields of knowledge

#### 4 ELC Available Services

The services commonly offered to the members of an e-learning community can be distinguished in two broad categories: communicative and learning-educational services. Each category organizes the services offered according to the following table:

<b>User Communicative Services</b>	<b>Learning-Educational Services</b>
Software overview	Educational Theory behind for community's organization and operation
Download software	Research techniques
Registration	Evaluation
User's recording User's Mailing Lists (sign up)	Bibliography
On line help Tutorial Faq	
Feedback	
Related sites (Links)	

The learning-education category includes services with organized information on:

a. The theoretical and pedagogic operational and organizational framework of the community: (Educational Theory). The educational and learning objectives of the LC are achieved by applying specific learning theories selected according to each cognitive field. These theories serve as the pedagogic framework of the community. It is

considered essential that this framework is referred to and analyzed. We can give the following examples:

- The Palaver Tree Online-In Class Study [7]. A research team headed by Bruckman at the College of Computing at Georgia Tech Institute designed the Palaver Tree Online, an ELC aiming at Supporting Social Roles in a Community of Oral History. This ELC supports and encourages students to come up with their own projects, which address issues of historical nature. An ELC link titled Educational Theory Behind makes reference to and analyzes the application of the learning theory of constructionism, which is implemented through the creation of artifacts by students.
- Likewise, the web page of the Pedagogical Institute (<http://www.pi-schools.gr/hdte/index.html>) offers ELC-related services. Among these services one comes across a link referring to the most appropriate learning theories for each cognitive field and educational aim.

b. Research Techniques: Educational LCs use specific methods and techniques for collecting, classifying, analyzing and recording the behavior-participation and responsiveness of their members. These techniques include Interviews, Discourse Analysis [5] and Artifact Analysis [2]. The outcomes of these researches are integrated in the constantly developing and evolving DLC, in order to contribute in the latter's progress and enhance its manageability, credibility, and efficiency to the benefit of both students and educators.

c. Evaluation: The service offered:

Allows educators to use various assessment methods, which monitor, evaluate, track and record the progress of students (exams, tests, projects),

Allows students to assess (with the use of appropriate questionnaire forms) the educators, the bibliography offered, the Software used, the various services, and the general structure and operation of the community.

d. Bibliography (educational texts, books-publications relevant to each field of study, papers, etc). LCs, satisfy their members' educational and learning needs by a complete and organized Database consisting of educational material in multimedia application forms, which cover the entire specter of the curricula offered by the LC, in accordance with the design and structure followed by Institutions providing open and distance learning programs.

The services-communication category includes services offering students the following options:

a. Community's Software overview, which gives potential-future members of the community the opportunity to use the latter's capabilities through: Preview, Software overview

b. Download software for Win/Mac: user name –password, new user. Link to the registration option

c. Registration : This process allows members to acquire a user name and password. Depending on the member's status, there is a different registration process: Casual-visitor, User-student, User-educator. This varied registration process ensures that the member categories are organized in different groups, thus allowing or prohibiting the intentional and selective interaction and communication between the members of each specific group. This capability facilitates and promotes the learning

process, since each member can decide for oneself the parties he/she wishes to communicate with, using chat, e-mail and online questions-answers services and also choose in which Discussions Forum (General-Local) he/she registers.

d. User's recording and presentation is carried out with the creation, organizing and completion of special cards that include the user's photograph, CV, user name, full name, e-mail address, web-page and personal interests. The LC administrator, depending on each member's status, allows access to each card selectively.

e. Additionally, the user's registration in Mailing Lists (sign up) is both encouraged and suggested, so that a user directory (search for a user-member) is available and directly accessible, in order for each interested party to be able to see the members who are on line at each given time.

Naturally, all other common services ensuring the smooth and easy operation of the LC are also available. These services include:

- a. Community's on line help,
- b. Tutorial designed to answer questions such as: how can I navigate ...learn who else is on-line, contact another member, open a page
- c. FAQ : I forgot my password. How do I get it? Got a question you'd like to see answered here?

d. It is imperative for an open, live DLC that a service offering access and information on the designers of the community is available. This service provides information on: who did what, CVs, photographs, personal data, Copyright, credits... Furthermore it allows feedback, by offering users contact addresses (url, e-mail).

More over, services such as the following are also available.

e. Related sites (Links) (e.g. [www.photo.net](http://www.photo.net), [www.cc.gatech.edu/elc](http://www.cc.gatech.edu/elc), [www.pi-schools.gr](http://www.pi-schools.gr)).

## 5 Dynamic Learning Community (DMC)

For a LC to be effective, accessible, and interesting to users, it needs to be enriched with new information, knowledge and fields of study, regularly updated in order to closely keep up with the developments in each scientific field and to meet the needs and demands of users. Thus, it needs to be able to operate as a DLC [20] and in order to do that, it has to allow users to intervene, adapt, design and modify both the content and the services offered.

This process is ensured through properly designed evaluation questionnaires. These questionnaires include carefully designed question categories such as:

- a. Survey questions
- b. General Interview questions:
  - name, age, educator assessment (identity and field of each educator, student's personal experiences with the latter, etc)
  - Assessment of the specific field of study or interest: the exact name of the field, how it affects the user, the latter's feelings, use of each field, time and place of use, etc.

## 6 Categories of existing LCs

The most common categories of existing LCs are classified according to the following table:

<b>Vocational Apprenticeship and Information</b>	Employment Exchange (OAED) Employers in the work places Post specialization Workplace Learning
<b>Means of Information and Advice</b>	Civil Services Private Services
<b>Involved in the preexisting Educational framework</b>	Academic culture Internet discussion groups

Therefore, they operate in one of the following ways:

- a. As Vocational Apprenticeship and Information programs, such as OAED (adult vocational training), Employers in their work places (constant and life-long training) for information purposes, Post specialization «Workplace Learning»,
- b. As information vehicles
  - Public Institutes (Education Institute, Greek Physical Society, Hellenic Mathematic Society)
  - Private Institutes (www.photonet.com, Yahoo, AOL)
- c. Involved in the preexisting Educational framework (School, High School, Universities, Open University).

Most of the aforementioned LCs operate as part of the traditional learning process and not in autonomous and independent ways. Usually, they cover -with the assistance of the Internet and the new multimedia technologies- induction, skill and practical courses (e.g. LearnCom [18]), or the applied / laboratory aspects of the curricula offered by such institutions. These are:

- a. Academic culture: Masters programs [21]

A trend is being recorded, that students with adequate economic means are turning to collaborative learning schemes, outside organized curricula, in places of work, practice, etc. gradually developing their own LCs aiming at a Masters level educational outcome. This learning process is considered equal in terms of its educational quality to traditional studies.

- b. Internet discussion groups. In many LCs, members exchange information, are briefed and learn independently in an interactive way, reaching high levels of scientific and research standards, transcending the boundaries of organized University studies or other Certified Educational Institutions [17]. Thus, the monopoly of knowledge transfer bestowed to universities or other organized institutions, big enterprises and cities or developed states, is undermined and distributed throughout the world, thanks to the internet.

## 7 Problems-prospects

The developers of a DLC encounter and immediately have to deal with two problems related to the operation of each LC: ensuring that members both stay with the LC and are actively engaged in the LC processes.

In order to ensure that members do not merely participate as passive listeners but are also actively involved (participants, «live» trainees), when designing the LC one should pay close attention to some crucial details such as:

<b>GAIN USER'S ACTIVE PARTICIPATION</b>	Role-position of educator Support of the horizontal participation- interaction between students User's communication methods: Teleconference Tele classroom Telephone IRC e-mail.
<b>ASSURE USER'S INVOLVEMENT</b>	Motivation Knowledge certification: Point system, merit-badge system Examinations Diploma bestowal L.C.'s operational environment credibility stability handiness and friendliness Movement to offered services : ease and movement's speed Range of development of collaborating learning Learning environment evaluation capability

a. Role-position of educators.

The educator-student relationship in traditional, live learning processes (in-class, face to face) is a delicate and sensitive issue. Frictions, misunderstandings and tension are always a danger. Thus, in a DLC, the educator should not play the traditional role of the ex cathedra Academic Teacher, or that of the absolute and sole owner of knowledge, in other words posing as the Authority, because in all probability this will discourage and intimidate students, attaching more problems to the learning process. An educator should rather undertake the role of the administrator, adviser and pilot in the student's effort to reach knowledge.

b. Horizontal participation-interaction between students.



The appropriate processes that will encourage the parallel educational interaction between students must be identified and activated. The active involvement of students must be supported and gained by assigning group projects and researches in order to fully develop the concept of collaborative learning. Therefore, any possible queries, questions, doubts or problems encountered during the learning process will be addressed primarily by students themselves, without feelings of embarrassment or inferiority caused by ignorance or delay to the learning process. However, in order to develop this climate and relationship between students, both the educator and the appropriate services of the LC (the ones constituting its structure and organization) should create beforehand the required social network-bond between students. (e.g. Theory of Social Networks [1, 9, 11].

c. Contact-communication between members.

- The telephone is an acceptable means of simple communication, but it is not suitable for cooperation. It is usually used for inviting students to participate in some other means of communication, that allows for long and uninterrupted ways of interaction, such as :
- IRC : Enables discussions through the internet, in which the entire team can participate. It is a common process used in the communication between the members of a team.
- Finally, e-mail, permit contact, collaboration and social-sentimental relationship between members, which is important for the effectiveness of the learning process.

In order to deal with the greatest problem encountered in the operation of all LCs – securing member participation- the following factors could prove helpful:

- The creators of the LC should establish and offer appropriate incentives. These incentives are defined according to the specific aims and goals for joining and participating in a LC.
- Merely satisfying the specific and specialized learning objectives probably cover the needs of only a part of LC members. If by completing the offered training program members were awarded certified degrees, this would be a strong motive for the active involvement and participation of a large number of users. It is essential that the processes granting, certifying and assessing the offered knowledge be carefully reviewed. The following methods of knowledge certification are suggested:
  - ❖ Point system, merit-badge system: This process certifies knowledge by specific levels. (Beginners, advanced, experts, graduates). Tests with gradually increasing levels of difficulty (both in quantitative and in qualitative terms) are used to assess, certify and reward the progress of students. The LC awards students merit-badges with gradually increasing status levels, which increase the rights of students to participate in the advanced learning processes of the Community (beginner-student, assistant educator, coordinator, assessor of student progress, etc.) (MOOSE Crossing-Online [3]).
  - ❖ Exams: On a regular basis, following the example of organized Educational Institutions

- ❖ Bestowal of Degree, Diploma of Studies (Certified): An organized exam process leading to the bestowal of certified diplomas (this process resembles the one followed by Open-Distance Learning programs).
  - The credibility, stability, handiness and friendliness of the operational environment of an LC, the ease and speed of moving from one service to another are crucial factors that gain student appreciation, ensuring students stay with the Community.
  - The operation of an LC is based and depends on the degree of collaborative learning, “the process when people acquire knowledge, capabilities and skills, as a result of team interaction, i.e. individual learning through team processes” (Kaye 1995). An indispensable requirement, however, of any successful collaborative learning is the development and cultivation of social and mental exchanges, which serve the achievement of the team’s goals, supported by a combination of various interactive methods with traditional books and resources [6, 10, 14].
  - Another requirement for the operation of a Dynamic Learning Community is offering students the opportunity to assess and review the entire learning environment: services, software, bibliography, their own assessment processes, and assessment of educators. The views and demands of the end user are invaluable for the effective operation of the learning process, especially when –as is usually the case with Open and Distance Learning environments-, students do not have predictable and uniform behaviors [19].

Therefore, the LC should offer services that provoke, underpin and support the social relationships commonly developed among groups with common interests - communicating through personal computers- beyond the mere exchange of information [15]. Consequently, the LC should provide the appropriate accommodations and services (joining organized entertainment clubs, forming and organizing discussion forums –interests –hobbies, videoconference) that allow the direct, easy and unhindered exchange of social and emotional support between members.

We should add at this point, that today the market offers a number of available complete web-based networked learning environment packages (for an evaluation of web-based learning environment’s see [13]), such as Topclass, WebCT, Learning Space, CENTRA-Symposium, all of which can be used in order to build a Networked Learning Community easily, simply and quickly. Administrators, however, should assess and consider the following parameters:

- a. Estimation of use and maintenance costs
- b. Expansion cost (The initial packages set limitations both in terms of the maximum courses offered and of the maximum number of users)
- c. The various packages do not support certain options such as synchronous learning, determining the pace of the learning process, student participation in experimental procedures, or Learning environment evaluation techniques. Generally speaking, the potential of the interactive and evolving Dynamic Learning Community, as defined and described above, is very limited.

- d. The packages' Architecture is closed and does not allow the administrator to interfere in any way, which leads to absolute dependence on the developer.

Our suggestion is that administrators should develop an integrated Web-Based Dynamic Learning Environment, with a fully open Architecture. The System's Server selection should be based on reliability (security-protection), stability (constant operation, automatic backup), easy upgrading and expansion criteria. The Software selected should be compatible with multiple Operation Systems, and meet the requirements of reliability, operation and communication speed, stability and security. Therefore, we suggest that the following Architecture and Structure characteristics are of major importance in the designing stage:

<b>Architecture</b>	<b>Requirements</b>
<b>Servers</b> Web Server File Server E-mail Server Chat - Forum Printer Server	Open architecture reliability stability easy upgrades expandability
<b>Files</b> Education Material: Syllabuses Teaching Units Courses Assessment Tests Bibliography	Compatibility with different Operation Systems reliability operation and communication speed stability security
<b>Data Base</b> Index cards with complete users' data per category	operation and communication speed stability security

## 8 Conclusion

An E-Learning Community is an organized web-based system offering synchronous-asynchronous informative, learning and educational services. It offers integrated and specialized Open and Distance Learning opportunities, transcending the various time, distance and cost related problems. It operates either as a complementary and supporting part of a traditional educational scheme Open and Distance Learning, or as an independent, integrated and specialized Learning Community.

Its members are registered students, educators and administrators, whose duty is to ensure the Community's effective and unhindered operation. The LC offers complete communication and cooperation services to its members, aiming at dynamic collaborative learning through the creation and support of services such as: Chats, E-mail, Groups, forums, Tele-classes, E-libraries, Assessment, etc.

In general terms, it is a carefully selected, organized and constantly supported appropriate Educational learning environment, that uses New Technologies of Multi-

media Applications and Services, through the Internet. Its aim is to ensure the unhindered and direct communication of its members, regardless of time and space limitations, in order to achieve and organize a Dynamic LC based on collaborative learning. Its structure is appropriate for covering the needs of self-conscious adults in the fields of information, education, life long learning, vocational training, specialization and post specialization.

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