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COLLABORATIVE LEARNING IN VIRTUAL LEARNING COMMUNITIES: THE TTVLC PROJECT

Paulo DIAS

Universidade do Minho

Resumo

This paper describes the development of a web-based training project to educators and trainers of virtual learning communities, according to a collaborative and situated learning approach. The aim of ttVLC (trainers training to Virtual Learning Communities — www.ttVLC.com) is to provide a framework of support to the needs of educators and trainers in the use of informational and communication technologies to develop web based educational and continuous training. This support includes the identification, implementation and evaluation of the e-learning strategies and process that take place in collaborative environments.

Introduction

The aim of the project ttVLC (trainers training to Virtual Learning Communities — www.ttVLC.com) is to provide a framework of support to educators and trainers to the development of competences to use and integrate informational and communication technologies in web based educational and continuous training, according to the collaborative and situated learning approaches.

Web-based learning environments offer tremendous resources and innovative solutions to develop learning communities in continuous education and training. However the lack of competences in monitoring and tutoring learning processes in virtual learning communities, as the implementation of on-line learning

strategies, i.e. collaborative learning strategies on the web, could diminish or even cancel the impact of this new educational environment.

The project course is addressed to educators and trainers that will supervise educational and professional continuous training in web-based learning environment. This group of trainers not only need to acquire and develop new skills in information and learning technologies to implement and develop distributed learning systems, as they also need to build their own knowledge. To accomplish this goal trainers will be enrolled in a distance learning process via the web, through which they will develop new attitudes and competences to the IT use and integration in web-based learning.

Educational and technological needs in continuous education and professional training stress a web-based approach to training, and will demand a strong contribute from universities and research centres to prepare new skilled trainers. The consortium partners in ttVLC project are the University of Minho (co-ordinator), Portugal; University of Gas and Petroleum, Romania; TecMinho, Portugal; Amitié, Italy; Vector XXI, Portugal.

Learning communities in the Web

The emergence of on-line learning communities is supported by the growing culture of participation in the learning activities through the interaction process. From this point, a learning community develops itself in a classroom or in the Web, when all the members of the group, including the teacher or the tutor, are deeply involved in the process of knowledge construction. This process also considers the mutual engagement on community creation and the development of his learning goals, (Dias, in press).

Basing the educational and organisational model in the social constructivism and on the situated learning approaches, the new communities intend to constitute themselves as experience centres. In this new communities learning is not separated from the action, and the learning process is better aimed for the community than for the individual.

Learning communities are alternative metaphors to the traditional education systems (Wilson & Ryder, 1998), as they promote the contextualization of learning and an active and collaborative learner.

The organisational and functional model of the community promotes the transfer of orientation and control methods and strategies of the learning development for its members, transforming it into a complex and suitable system. The first manifestation of this system takes place through multidimensional exploration of meaning construction and in the individual and collaborative adjustments towards a dynamic development of the cognitive restructuring in knowledge building.

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The flexible nature of web learning environments promotes a wider control of the student in the learning experiences, and also points out the importance of the critical role of the individual aims in the quality and nature definition of the accomplished learning experiences (Wilson & Lowry, 2000). This process promotes the reflection on the new knowledge under the form of the continuous negotiation of the individual representations, which moves to the sharing of the thinking patterns in the learning communities.

The sharing model, that emerges from the dynamics of networked communication, constitutes the central practice and the defining line of these new learning virtual communities (Berg, 1999). The challenges of this new approach reflect necessarily in the nature and development of the learning virtual communities' activities, both in the plan of its definition as a group, and in the development of the relationship with the knowledge.

Learning theory

One of the most significant changes in the contemporary learning theories proposes that the knowledge be observed not as an abstract and out of context representation, but as a constructive process that emerges from specific situations and contexts (Brown, Collins & Duguid, 1989; Lave & Wenger, 1991; Clancey, 1997).

The situated cognition theory is based on the fact that all the thoughts and human actions are adapted to and being located in the environment. Under this perspective, what people understand, the form as they conceive their activities, and what they do in physical terms, is developed in a conjunct construction, Clancey (1997: 1).

In this sense, Wilson & Myers (1999) refer that the knowledge, the learning and the cognition are social constructions, expressed in actions of people who interact in the midst of the communities.

The participation is the main element for the cognition and for the situated learning, because it requires the development of the negotiation in the process of meaning construction in the different situations and contexts in which it happens (Lave *et al.*, 1991). This process, according to the same authors, implies that the understanding and the experience be in continual interaction, and that the participation notion decreases the distance among the contemplation and the involvement, the abstraction and the practice, being, this way, actions, people and the world implied in the thought, in the discourse, in the knowledge and in the learning, accomplishing, this way, an immersion process in the contexts of knowledge construction.

The environments that result from this new conception are defined by the learning contextualization, by the individual decision on the materials to work with, by the identification of the aims to reach and by the community's involvement in the

definition of a strategy for the construction and experiencing of the situations and contexts of knowledge production.

The web course design

The course design was developed according to the collaborative and situated learning approach, having as a central principle the construction of an online learning community.

The creation of a learning community assumes the acquisition of specific competences on planning, communication, attendance and evaluation of the learning activities produced by the members of the virtual group.

Therein, the course design in ttVLC project was oriented through the following objectives: i) develop attitudes to the use and integration of technologies; ii) develop competences to planning and monitoring web-based distance education; iii) develop competences of integration and use of information and communication technologies in web distance education; iv) develop learning strategies to promote learning process in web-based educational environments.

The organisational course model develops from the presentation of the work units under case study form. The course design is supported by five case studies covering the following topics:

- i) planning, management and monitoring;
- ii) web-based communications;
- iii) online learning — individual learning
— collaborative learning
- iv) online tutoring;
- v) assessment.

Our proposal assumes the case as the fundamental unit of the educational design and includes, in each case study presentation, the knowledge contextualized representation. This representation is in an intimate articulation with the practice or activities area (as we can see in fig. 1), aiming to provide the contextualization of the apprenticeships and also the support for the involvement and the jointly building of the knowledge by the members of the community during the fulfilment of the tasks. In order to promote this (situated) learning approach, activities are developed by cmc, i.e. chat, forum, email. Through these media channels, trainees are encouraged to engage in the process of explore content materials, share the results with the group and develop competences of IT use and management in educational web environments.

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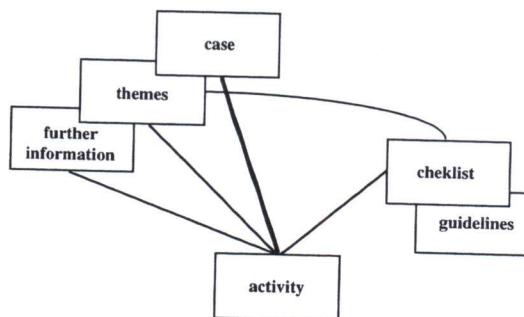


Figure 1 - ttVLC educational design

Course development is centred in the case study and the activities to be performed in order to implement it. According to this design, the trainee has access to a first level of group of information which show different development aspects of the case study, which are *themes* and *further information*, and in a second level, information supporting the realisation of activities, in *guidelines* and *checklist*.

The development of a case study presentation is fulfilled through *themes*, which includes the knowledge representation in associated situations, and the *further information*, from which the connection and exploration of advanced materials is established for the activities and apprenticeships in use.

In figure 1, we present the functional architecture of the different information units which shape the case presentation and its development and articulation with the activities.

The flexibility of this learning model doesn't restrain the trainee to the sequential interaction and independent accomplishment with the contents, either to the exploration of the materials of the case, or in the fulfilment of the activities. On the contrary, it is expected that the trainee establishes an exploration process of the materials according to the needs and demands of the apprenticeship itself, namely in the collaborative processes that take place in the virtual communities.

Collaborative learning strategies in the Web

The dynamic of the interaction processes suggests a great variety of forms through which the apprenticeship in a community can take place. According to Sherry & Wilson (1997), the learning community activity tends to show a pattern of interaction mutually sustained which defines the learning collaborative support in the communities of the web. According to these authors, the development of the on-line learning model is characterised by: *i) the definition of the learning needs; ii) the*

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search for help in a forum; iii) the involvement in the process of consultation of help; iv) the evaluation of the apprenticeship; v) the sharing of the solution with the group; vi) the register of the interactions and of the solutions found aiming a future consultation; vii) the repetition of the process in its whole or in parts, whenever it is necessary to support the apprenticeship (Sherry & Wilson (1997: 72).

The activities' development cycle in the web learning communities puts into evidence the processes of participation and involvement, sharing of the representations, and the collaborative knowledge construction, through the networked communication practices among the members of the community. This approach was used in the development model of the case Collaborative Learning in the project course ttVLC.

Collaborative learning is an instructional method whereby students are encouraged or required to work together on knowledge building. Collaborative or group learning is based upon a student-centred model that treats learner as an active participant in the activities of the group toward a common learning goal. According to Harasim *et al.*, (1997: 150-151), conversations (verbalising), multiple perspectives (cognitive restructuring), and arguments (conceptual conflict resolution) that arise in collaborative learning groups may explain why this learning model promote greater cognitive development than the same individuals achieve when working alone.

The implementation of the collaborative learning case study in ttVLC project was oriented by the dimensions of mutual engagement, shared repertoire and joint enterprise that characterises situated learning (Rogers, 2000), and online collaborative learning environments. These dimensions were considered in the process of definition of the main strategies to develop online collaborative learning, as follows.

The *active learning* is a strategy oriented to the promotion and development of the members of the community participation and involvement. The participation includes the process of involvement of the community members in a common activity, through which it is defined the objective that guides the activities and the existence of the community itself.

The *interactive learning*, the *multiple perspectives* and the *flexible learning*, are a group of strategies dedicated to the development of the sharing of the representations in the collaborative learning in the virtual communities. The sharing of the individual models describes the negotiation process and the formation of a reference among the members of the community, from which it will enable them to negotiate the interpretations and understandings, and to produce their own ideas concerning the activity project of the community.

The *collaborative knowledge building* is the oriented strategy for the expansion, for the community, of the cognitive learning individual process. The collaborative knowledge building describes the process through which the individual reactions and perspectives are the object of negotiation towards the

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shared information and common objectives, aiming the construction of an interpretation and representation of the group's knowledge.

Learning activities

On-line learning must have as a central objective the creation of a learning community and through this, the facilitation of ideas' exchanging, the information sharing, the inter-partners help and the communication among its members. So, the working on-line environment should include tasks oriented towards the search of information and questions for discussion or answering, instead of basing itself in the plain knowledge transmission. The importance of the learning tasks' contextualization is, according to this framing, a basis for the understanding of the individual processes of learning, namely through the exploration, reflection, articulation and building of knowledge, (Hiltz & Benbunan-Fich, 1997).

It was lead, according to this perspective, the planning phase of the whole of the tasks aimed to the trainees' progressive participation in the learning activities and the formation of the community, involving the following areas: the definition of the learning objectives; the organisation of the learning activities; the discussion and exchange of ideas; the presentation of the individual perspectives; the research and exploration of information in the web; the knowledge reconstruction; the reflection on the new knowledge. The activities are listed in figure 2, in articulation with the collaborative learning strategies development and the supporting media.

The suggested activities are based in the recognition of the influence of the participation processes, namely the nature of the interaction, of the task and of the environment, having been developed, for the case which is being analysed, a model of the use of the synchronous and asynchronous communications. This model was developed according to the specificity and the needs of the students in order to perform the task, namely on the required reflection time to fulfil the activity (i.e. the preparation of a contribution in a forum, the discussion of a paper).

Learning strategies	Activities	Media
active learning	defining learning goals	chat
active learning	organising learning activities	chat
Interactive learning	discussion and exchange of ideas	chat; forum
Multiple perspectives	presenting individual perspectives	forum
Flexible learning	search and explore information in the web	web links
Knowledge building	knowledge reconstruction	forum
Knowledge building	reflection over new knowledge	forum

Figure 2 - Learning strategies, activities and media

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