Conceptual Models for the Creation and Development of Virtual Communities: a contribution to the state-of-the-art

Clara Coutinho and Eliana Lisboa
University of Minho - Braga - Portugal
Portugal
ccoutinho@ie.uminho.pt
eslisboa2008@gmail.com

Abstract
Nowadays, virtual communities are present in all social segments. Unlike business, the presence of virtual communities in education contexts is still in the process of implementation and acceptance by a large part of the school community. To understand their dynamics and functioning is not a simple task. For its proper functioning it implies that some elements work in perfect harmony and are able to encourage spaces with multiple learning possibilities. Therefore, this paper aims at presenting some models that try to explain the process of creation and development of virtual communities. We believe that these models may work as guidelines that might help us to better understand the concepts of interaction, collaboration, e-moderation and collaborative learning.

Keywords: Communities, E-moderating, collaboration, virtual community, knowledge.

1. Introduction
We are living in a society that presents differentiated characteristics from the agricultural and industrial model, where the technological convergence offered by digital technologies has enabled an increase in the information flow, thus ensuring that communication reaches never before imagined proportions (Toffler, 2002).

These characteristics are directly linked to the knowledge democratization process, giving rise to new spaces of search and share of information, pointed by Lévy (1996) as the “deterritorialization of now” process, since there are no access barriers to consumer goods, products and communication. The important thing in this society is not the technology itself, but the possibilities of interaction it enables through digital culture.

In that context, Takahashi (2000, p. 5) states that this new society, also defined as “information society (...), represents a profound change in society and economy organization, there being some that consider it a new technical-economical paradigm”. The author refers also that this new era may be considered a global phenomenon because it affects directly social and economical activities, and their structures and dynamics are undoubtedly affected by the infra-structure of available information.

In fact, with ICT it was possible to experience new spaces where learning can occur, that surpass the traditional spaces like school, family, companies, etc. (Gadotti, 2005). To justify his statement the author goes back to the idea that McLuhan emphasized in the 60’s, when he says that the planet was transformed in our classroom. In a similar way, Machado (2002, p.39), in his research he states “cyberspace destroyed the idea of appropriate time to learn. The space to learn is here, anywhere, the time to learn is today and always”.

That is because cyberspace represents a new means of communication where all can contribute to its growth and development through the production and propagation of information and knowledge. That growth is associated with cyber culture, because it is the manifestation of the practices, cultures and opinions of the many users attending the virtual environments. It is in this context of cooperation that virtual communities rise, supported by interlinking and collective intelligence (Lévy, 1998). The first is present, in addition to virtual communities, in the various forms of interaction, and the second represents the result of the collaborative process enabled by cyberspace, since everybody can be a producer of knowledge. According to Lévy (2003), the possibility of interaction inside a community revolves around an equal theme, which makes them a fertile space to disseminate cyber culture.

In order to understand how these new environments work, we will present and discuss some theoretical models that allow us to understand the dynamics of virtual communities: i) E-moderating model, developed by Salmon
(2000); ii) Murphy’s collaboration model; and iii) A Model for Understanding Online Communities (Arrasvuori et al., 2008). We believe that an analysis of these theoretical frameworks may help to define the guiding lines to understand a set of emerging concepts that are part of our academic vocabulary but urgently demand systematization and conceptual foundation, like interaction, collaboration, e-moderation and cooperative learning. Moreover, the complementarity of the three presented models constitutes a conceptual framework to develop research on online education as it takes a holistic model to understand knowledge construction in informal learning environments where prevails text-based communication from online asynchronous discussions. On the other hand, we also believe that the topics discussed in this paper will help to understand the dynamics and the evolution of virtual communities to communities of interest, learning communities and communities of practice, in particular the repercussions and implications of social networking for educational policies.

2. Review of Literature

Virtual communities are the manifestation of desires and longings of a new social order that emerges from the technological paradigm that sees new possibilities in digital technologies to establish a horizontal communication inspired by common interests, where people begin to share knowledge, contributing to its production collectively. This new way of conceiving knowledge is related to the philosophical principles of Paulo Freire (1984, p. 63), when he said that: “no one educates anyone. No one educates himself, people educate each other, mediated by the world.” It is precisely in this process that language plays a vital role, in which via technologies and the Internet, it is possible to have a communication either synchronously or asynchronously, from many to many, with digital contents and data exchange between people who are connected around a common theme.

In the literature there are many models that attempt to explain the creation and development of virtual communities. However, we highlight those that we find more suited to our study, whose main focus is preferentially collaborative learning. Therefore, in the topics that follow, we will cover the following models: e-moderating model (Salmon, 2000), Murphy's collaboration model (2004) and the model of learning in virtual environments (Arrasvuori et al., 2008).

2.1 E-moderating model

Developed by Gilly Salmon (2000), it presents a complex interaction between cognitive, motivational factors and social processes (Coutinho & Lisbôa, 2010). One of its grounding blocks is that people can learn while interacting with other people mediated by ICTs, since, to Salmon (2000), success comes from integrating the technological nature and cooperative mediation.

The model is presented in the form of scale, containing two types of competence respectively: moderation in the virtual environment (e-moderator) and technical support (see Figure 1). In the vertical bar to the right we can see the degree of interactivity during the development phase. We realize that this interactivity is less expressive in the stage of access and motivation which we think is due to the fact that the process is in the initial phase and the flow of messages is still small. However, in the online socialization stage this interaction slowly increases. At this stage, it is assumed that people are communicating with a much higher frequency and creating social ties. Gradually, this interaction increases considerably in the stages of the exchange of information and knowledge construction, because participation, with respect to the sharing of experience and knowledge, finds a more fertile ground, and decreasing in the development stage, where participants will apply the knowledge constructed collaboratively in other contexts of their lives (Salvat & Quiroz, 2005).
Since the model allows articulating "in each level the functions of technology integration and e-moderation" (Dias, 2008, p. 7), we might state that this could be explained in the light of Actor-Network Theory (& Coutinho, December 2010).

In view of the above, the e-moderator can be considered an element of fundamental importance for the management of knowledge in cyberspace. Their interventions and guidelines could contribute to the group to reflect on the importance of establishing connections with other people and that collaboration and knowledge sharing are extremely important for socialization and knowledge construction in a virtual environment.

2.2 Murphy's collaboration model

The collaboration model was developed by Elizabeth Murphy (2004) with the goal of understanding how the learning process occurs in asynchronous communication predominance virtual communities. This model has interaction and collaboration as catalyst elements to the development of an appropriate climate for a collaborative elaboration of knowledge. Meanwhile, cooperation is seen as an ongoing and constantly evolving process, which takes place over six processes: i) social presence; ii) articulating individual perspectives; iii) hosting or reflecting the views of others; iv) co-constructing common perspectives and meanings; v) construction of shared goals and purposes; and vi) producing shared artefacts.

The model now presented starts from a simple and spontaneous interaction defined by Schrage (1995) as purposive relationship until its final phase, which is the production of artefacts, as shown in Figure 2.

In the second step, the members begin to express their ideas. However, in the second stage, members begin to express their ideas. Although they are aware of the presence of other members, they might have not yet developed the desire or perhaps the need to interact, emit or receive feedbacks. Although at this stage there is no interaction, the author emphasizes that it is of fundamental importance because it will be the starting point for that in the next stage (articulating individual perspectives) members can examine and reflect the contributions of colleagues, since it is during this phase that the process of reception begins and also the respect for others' ideas. We believe that it is an important strategy to prepare members for the next stage (Co-construction of common perspectives and meanings), when it will be necessary "to change and reset individual prospects, so then they can work together in the construction of meaning" (Merinhos, 2006, p. 165).
The stage of “Co-constructing common perspectives and meanings” is of extreme importance because it intensifies interactions and the shared repertoire assumes stronger qualities. By sharing information people will establish connections to prior knowledge and accommodate new information in their mental structures (Ausbel, Novak & Hanesian, 1980) and, to some extent, we can already realize that the group is more involved in the achievement of common goals (Lisbôa, 2010).

The apex of the model appears in the production of artefacts as a result of the collaboration. That's because this model assumes that through collaboration and interaction the members in a community aggregate values with the purpose of creating new concepts, new positions, called artefacts (Murphy, 2004), as the “collaboration is supposed to produce something”. Its success, he claims, ‘can be measured by its results” (Schrage, 1995, p. 30).

### 2.3 Online Communities Model

This model was developed by Arrasvuori et al. (2008) and had as theoretical presupposition the concepts addressed by Preece (2000, 2004), when in his studies of online communities he emphasizes their existence will only be possible in view of the continuous desire of its members to seek and share information and knowledge, developing a sense of belonging and empowerment of its participants.

This can only occur adopting an organized policy of the community itself, which includes technological resources, community management, trust and mutual respect among members, among other things. These conditions are very important so that members on mutual interaction (Primo, 2000) can develop a shared repertoire, increasing or rather developing their “social capital”, which is the element that rather than giving just life to a community, it is also responsible for its continuity.

Starting from this assumption, the model describes the components of a community and demonstrates how these elements are interdependent. This condition, according to Arrasvuori et al. (2008), is necessary for the community to develop itself (see Figure 3).

**Figure 3: An overview of the model (Arrasvuori et al., 2008, p.71)**

In the authors’ view, the example presented is a holistic model because it keeps interdependence between its components, for example, e-moderator, operating policy, motivational factors, and content repositories, among others.

As shown in the figure above, the model has as triggering elements the members of the community, because is from their wishes, desires and needs that the community gets the means to build strategies to achieve their goals.
This is because a member of the community represents a mental and cognitive process in addition to the technological one (Arrasvuori et al., 2008, p. 70). This way we realized that participation constitutes the core of this model.

When becoming part of a community, each member introduces more social capital (Preece, 200, 2004), which in theory is the knowledge and information that we already have, but that may be extended or even transformed when interacting with the other community members.

3. Discussion

All the three models presented above offer researchers opportunities to understand the dynamics of a virtual community. For instance, just consider the model developed by Salmon (2000), which states that the achievement of a virtual community, as an environment of multiple knowledge contributions, is only possible given the association between human and technical components, thereby guaranteeing the quality of connections. Murphy's Model does not highlight the importance of the e-moderator as a dynamic element of the interaction process, such as Salmon (2000) predicts in his model. However, Murphy’s model highlights the importance of collaboration in online environments to the process of knowledge construction, and from a constructivist point of view it is an important factor to take into account in online learning environments. In our point of view, the e-moderator presence is of maximum importance since he is a facilitator of the learning process in an environment where the face-to-face contact is almost or totally non-existent.

Finally, we have the model developed by Arrasvuori et al. (2008), which from our point of view contains multiple determinants, such as: i) Content (access, create, enjoy, enrich, maintain, share, and ii) People (socialize, observe, govern, play, recruit, external activities) (Arrasvuori & Olsson, 2009). Based on this principle, activities do not occur isolated because they will always be subject to, regulated or even influenced by all these components, added to the motivation of members to participate and contribute to the knowledge construction of others.

Assuming this and regardless of the approach that each author uses to explain the development of communities, we realized that in all models are implied interaction, collaboration, collective construction, co-responsibility, autonomy, among other factors important for knowledge construction (Coutinho & Lisbôa, 2010).

However, we are aware that this knowledge construction will be directly linked to activities developed in the communities which in turn maintain a close relationship with the evolution of its objectives, as well as of its creation process over time (Henri and Pudelko, 2003).

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References


