Learning Communities in a Web-based Environment: Educational Intranets

Ana Luísa Neves

Department of Informatics Engineering,
University of Coimbra
Polo II – Pinhal de Marrocos
3030 Coimbra – Portugal
351.39.790000/21
analu@lila.dei.uc.pt

Since its beginnings, the Internet has been seen as a means for learning. However many of the attempts to use the Internet do not take advantage of the spatial abstraction that the Internet provides. Moreover, they also ignore the results that can be obtained if we create these learning attempts around a community.

The purpose of the present paper is to reflect upon the advantages the Internet can gather and, above of all, upon the benefits learning communities present. It also proposes further approaches to learning communities. Finally, from the alliance between the latter and web-based environments, results a clear concept of Educational Intranets, which this paper also intends to deepen. [i]

1. INTRODUCTION

Compulsory or not, learning is part of our life. Only through continuous learning will we be better prepared to face daily challenges. For that reason, many people spend their time trying to figure out the best way to enable the learning process.

In the last few years, the Internet has been in the thoughts of those who try to find that miraculous learning enabler. It has been identified as a privileged space to implement learning activities [3]: existing activities transposed to the Web environment or new activities to be created [8]. Yet, the Internet can also be seen as a way to facilitate the creation and development of virtual communities. And this is many times forgotten. The basic idea is to join the benefits communities and of the Internet. The concept of an Educational Intranet has been advanced as "a reserved space of interaction where people can get together and share a common context where they can learn" [8]. But, while some work has already been done, the idea behind such an Intranet has not yet been clearly revealed. And so cannot be easily explored.

With the present paper, we intend to go a little further in disclosing the reasons that give Educational Intranets such an important role.

Figure 1 is a concept map that intends to represent the ideas we will discuss throughout the rest of the paper.
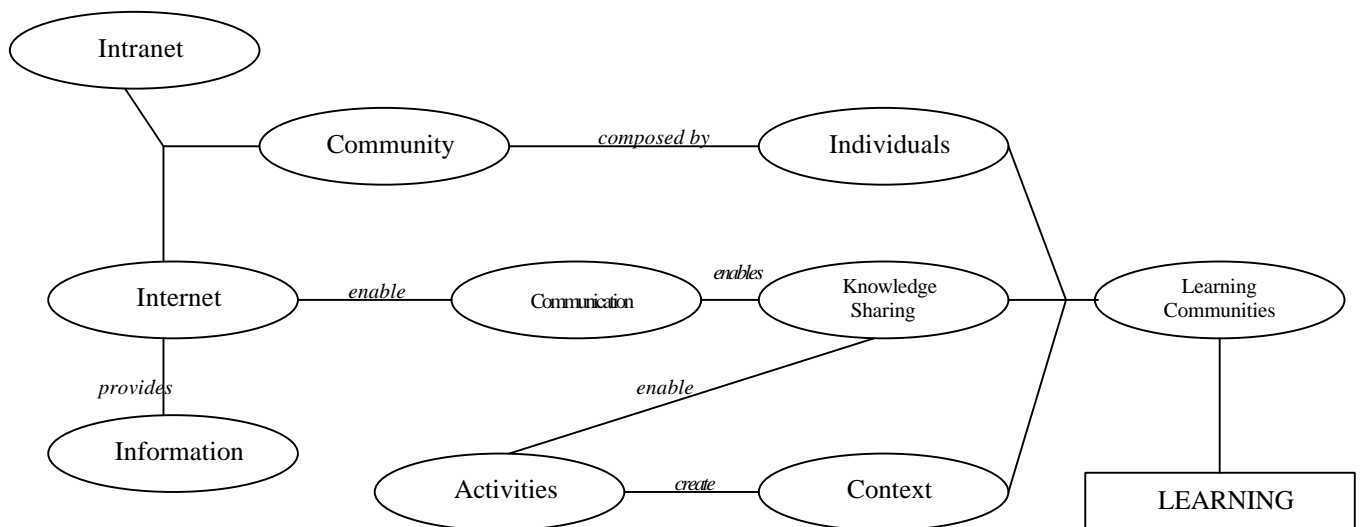

Figure 1 - Concept map presenting the ideas of this paper

The starting point will be Intranets: we present them as an alliance of Internet and Communities. Then, we deepen those two concepts and reach our goal: the learning process. On the way, individuals, context and knowledge sharing are analyzed as the major elements of learning communities.

2. INTERNET

Ever since it appeared, the Internet has taken part of many people's communication habits. It supports the "any-place-any-time" philosophy which people find so convenient. Time and distance are no obstacles for contact and communication anymore. The synchronous and asynchronous communication tools the Internet supports have largely developed its usage and generalization. For some time now, Internet access is a necessity many people cannot do without.

The Internet also becomes of extreme importance when we think about how easy it is to make information available. And to keep it updated. People have found a comfortable way to share and discuss their ideas. Doing so with someone who has different perspectives and experiences helps to improve the quality of produced results. The diversity of experiences the Internet can put together is, then, another point that adds up to its success.

3. COMMUNITIES

The dictionary presents a community as being "a group of people with a common characteristic or interest living together within a larger society". This definition highlights two very important issues. First, the fact that a community is a group of individuals. Second, the common characteristic or interest that keeps them together. However, the dictionary does not refer the cooperative and collaborative interactions between community members. And it does not mention either that, being part of a community, an individual ends up enriching his/her knowledge base even if that was not the purpose. This learning occurs due to the knowledge exchange that, explicitly or not, takes place in the various activities communities deploy.

These are common characteristics to every community. What distinguishes them and what can make them Learning Communities, is the level of learning their members achieve.

"Learning communities" is a concept similar to the one of "learning organizations". The latter was introduced by Argyris and Schon [1] and was, after that, generalized by Senge [11]. Organizational learning, as advocated by them, suggests that higher order forms of learning can be obtained within communities that systematically build up and share a collective body of knowledge. After that, and based on their work, Palkiewicz [10] adventured a shy allusion to learning communities.

All these ideas are supported by Vygotsky's legacy. He was the mentor of social constructivism. He states that, we not only learn from the symbolic transmission of knowledge (i.e., content), but also from learning processes that internalize social interactions [12].

Next, we strive to present learning communities through a different perspective. We present these communities as an equal-part mixture of individuals, context and knowledge sharing.

3.1. Individuals

Everyone is different. Everyone has unique characteristics that distinguish him/her from every other person. If these differences are what still make the world an interesting place to live in, they can also bring
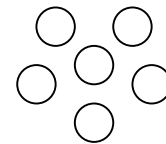

Figure 2 – Our proposed representation of Individuals

difficulties.

When people try to work together, they are faced with problems related to personality, values, and so on. If we intend to create a community, it is essential that, besides a common goal and interest, all its members share a group of values and a vision [6]. The purpose of the latter is to guide their actions and keep them on track of their goal. Only this way they will cross the limits of a group of individuals to become a community.

3.2. Context

But, if people are unique in their personalities and values, so are they unique in their backgrounds and experiences. Diversity can be very enriching. Yet, it can also constitute an obstacle to the creation of a common language. A common language is a necessary condition to reach a full understanding between every member of the community. This common language is based upon a common context. Without it the advantages of a community are lost because members will not be able to communicate. It is the context that gives sense to their
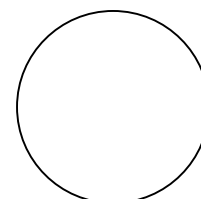

Figure 3 - Our proposed representation of Context

work and activities. That is why its existence is so important.

Context is intimately related to the social environment that surrounds the community. Who surrounds the community is fundamental, as individuals tend to internalize behaviors and knowledge reflected by other people's procedures [12].

3.3. Knowledge Sharing

After creating a context for the gathered individuals, it is necessary to start the learning process. In order to achieve this goal, each individual's knowledge must start describing a continuous spiral. According to Nonaka and Takeuchi [9], there is a dynamic that leads to knowledge creation. That dynamic consists of the transformation and transfer of knowledge. These events can be triggered by various activities such as those proposed by Jones [5] and Neves and Figueiredo [8]. Because of this, it is essential that activities be programmed and efforts be made to

Figure 4 – Our proposed representation of Knowledge Sharing

facilitate the flow of knowledge among every member.

The dynamic of knowledge is here represented by a bi-directional arrow. Knowledge flows both ways: to and from each member of a community (or so it should). The more intense the flow, the more alive is the learning process, and the more we foresee a Learning Community.
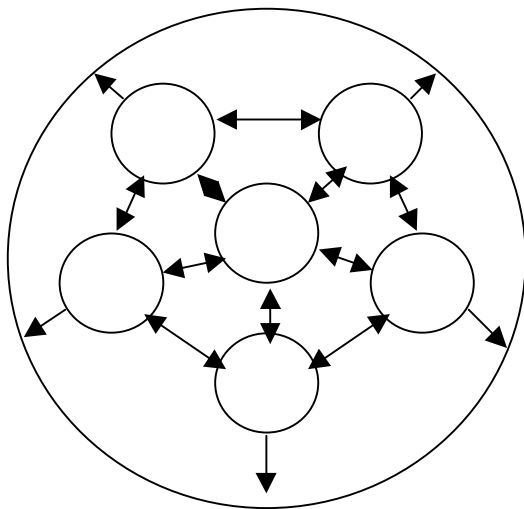
4. LEARNING COMMUNITIES

Figure 5 - Our representation of Learning Communities. It is the union of the representation of the three elements: Individuals, Context and Knowledge Sharing

As we said before, learning communities can be seen as the union of the three elements: individuals, context and knowledge sharing. Following the same line of thought, a graphical representation of a learning community can also be seen as the union of the three proposed representations.

The knowledge sharing arrows flow both between all members and between them and the surrounding context. Another important aspect is the middle circle. It represents one of the community's members. However, being central, does not mean s/he is more important than the others are. It only means that the rest of the group also constitutes a surrounding context to him/her.

Finally, the model allows an abstraction and a different interpretation: each inner circle can be a smaller community. It unveils the resemblance between the relationship community members have and the relationship between communities themselves. If communities manage to closely interact with each other they will get and produce higher quality results.

5. EDUCATIONAL INTRANETS

The advantages of using the Internet should be obvious by now. We have used this paper to state the importance of the Internet as well as of learning communities. Now, we adventure ourselves into the proposal of Educational Intranets.

The idea of an Educational Intranet is to implement an alliance between the large availability of web-based environments and the advantages of learning communities. The intention is to offer the possibility of creating learning communities spread all over the world.

Right now, there are many tools available to communicate through the Internet. However, it is necessary to find better ways to take advantage of the existing tools and to adapt some of them to learning purposes.

Moreover, it is necessary to make further studies in order to understand the behavior and the relationship between people belonging to virtual communities. Some studies have already been made to reveal the characteristics of communities such as those [6]. But, despite their quality, they lack time to reach more reliable conclusions. Besides, virtual communities that envision the learning process may present different characteristics. Those certainly deserve a closer look and approach as they might influence the way they should be used.

An Educational Intranet also requires the implementation of learning activities. Activities can be seen as a four-phased process and may be represented by a square (fig. 6).

The identified phases are:
- objectives – it is very important to clearly define the objectives of the learning process and the purpose of the activity itself. Only through a

thorough definition of goals will a learning process succeed. And only after building a good perception of the activity should the learner start its execution;

- execution – this second phase is many times mistaken with the activity itself. Yet, it is only one of the four and it may not even be the most important. It is during execution that the learner strives to achieve the proposed goals according to the predetermined rules;
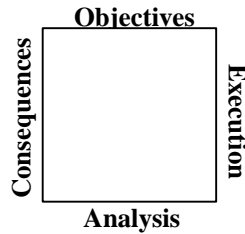

Figure 6 – The four phases of an activity

- analysis – for an activity to be successful it is important that an analysis be made in order to assess whether the objectives have been reached or not. This is most useful when planning future activities;
- consequences – consequences can be part of the pre-defined objectives or can be unexpected. They are what remains after the execution is concluded. Consequences may be observable immediately after the execution ends or, in most cases, some time later.

Considering the importance of activities, a little change to the model presented in figure 5 is presented next (fig. 7
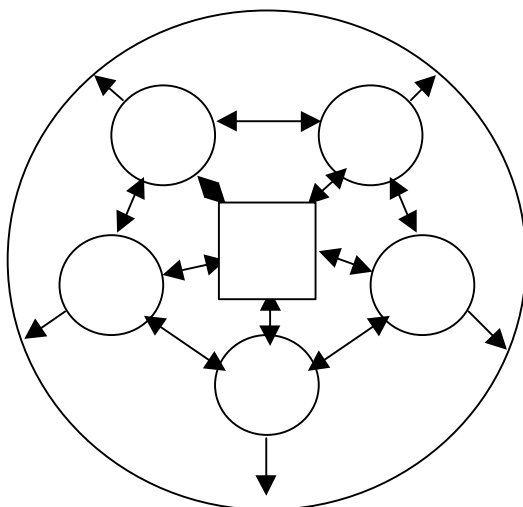

Figure 7 – The representation of a Learning Community where Individuals provide a Context to Activities

and fig. 8). It does not intend to change the concept of learning communities. Its intention is to reveal the close relationship that should exist between those communities and their learning activities.

Activities may be represented in the model in two different ways according to their dual role: when central to the model, they are seen as programmed according to the context individuals create (fig. 7); otherwise, they are seen as enablers of context creation (fig. 8).
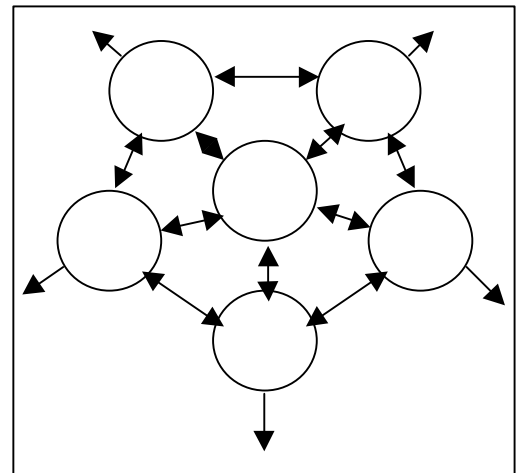

Figure 8 – The representation of Learning Communities where Activities provide the Context for Individuals to acquire Knowledge

Some learning activities with both purposes have already been proposed to the web environment [4, 7, 8, 13]. Yet, the results they produce must be analyzed in more detail so as to improve the quality of their consequences.

6. CONCLUSION

Guiding us through this work has been the idea that "the worth of the group [is] many times the sum of the worth of its individuals" [2] and also that web-based environments have still a lot to give.

We intended to present Educational Intranets. They have been introduced as a union of Internet environment and learning communities. What they are and their benefits were also referred. Individuals, context and knowledge sharing deserved reflection as the major elements of learning communities. Activities also deserved attention while related to such communities. Graphical representations have been offered and future work has been proposed.

However, the present work would be incomplete, without highlighting the fact that the ideas presented should not be restricted to communities with an explicit learning purpose. Educational Intranets would greatly benefit every kind of organization. They would provide a privileged support to continuous learning and benefit those organizations with diverse locations physically distant.

Due to their characteristics, and once carefully planned, Educational Intranets could turn true the concept of learning organizations [1,11].

7. REFERENCES

[1] C.Argyris and D.Schon, Organizational Learning: A Theory of Action Perspective, Addison-Wesley, 1978.

[2] G.M.Blair, Groups that work. See *http://spindle-ee-net2.ee.ed.ac.uk/~gerard/Management/art0.html*

[3] P.Duchastel, A web-based model for university instruction, 1997. See *http://www.nova.edu/~duchaste/unimodel.html*

[4] N.Henze and W.Nejdl, A web-based learning environment: applying constructivist teaching concepts in virtual learning environments. See *http://www.kbs.uni-hannover.de/paper/97/ifip97/paper15.html*

[5] J.S.Jones, Participatory teaching methods in computer science. See *http://www.graceland.edu/~jsjones/research/participatory_CS_ed.txt*

[6] A.J.Kim, 9 Timeless principles for building community – Erecting the social scaffolding, Web Techniques, 1998.

[7] J.Multisilta, Learning Environments on the World Wide Web: Experiences from Astronomy on-line, Education and Information Technologies-Vol.2 N.3, 1997.

[8] A.L.Neves and A.D.Figueiredo, Modeling a web-based educational environment, Paper accepted in Euroconference'98, 1998.

[9] I.Nonaka and H.Takeuchi, The Knowledge-Creating company: How Japanese Companies Create the Dynamics of Innovation, Oxford University Press, 1995.

[10] J.Palkiewicz, Tecnologie éducative et fonctions mentales, 1996. See *http://www.fse.ulaval.ca/fac/ten/reveduc/html/Palkie.html*

[11] P.Senge, The Fifth Discipline: The Art and Practice of The Learning Organization, Doubleday, 1990.

[12] L.S.Vygotsky, Mind in Society – The Development of Higher Psychological Processes, Harvard University Press, 1978.

[13] C.Watters, M.Conley and C.Alexander, The Digital Agora: Using Technology for Learning in the Social Sciences, Communications of the ACM – Vol.41 N.1, 1998.

[i] The present work results of a six-month project that was oriented by Professor António Dias de Figueiredo.