Building Online Communities in Higher Education Institutions:
Creating Collaborative Experience

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KEY TERMS AND DEFINITIONS

ALUD2: The acronym standing for Aprendizaje en Línea de la Universidad de Deusto (Online Learning at the University of Deusto), the learning platform we use to support collaborative learning among peers.

CSCL: Computer Supported Collaborative Learning, new learning paradigms that place the individual in the centre of the learning process, where knowledge and learning process is developed in collaboration with peers, also in relation with his own context and with the mediation and help of the teacher.

eCampus Project: A strategic objective under the University of Deusto’s Strategic Plan 2011-2014, which focuses its work at the use of technology in many teaching-learning processes.

Eskola 2.0: Educational regional policy with a huge investment to provide to public schools new learning technologies and content at every level of education.

GApps: Freeware and collaboration tools for schools provided by Google.

2010 Strategy of the European Commission: The European Commission’s new strategic framework to encourage knowledge and innovation with a view to boosting growth and creating more better quality jobs.

ICT for Education: Information and Communication Technologies used at educational contexts.

IQTU: Innovation and Quality Technical Unit, the supporting staff for the improvement and innovation of best practices in teaching-learning processes at the University of Deusto.

KLT: Knowledge and Learning Technologies, ICTs for education used at the University of Deusto particularly stressed in methodology and in the uses made of them for learning and knowledge acquisition.

ULM: University of Deusto's Learning Model, a competence-based model with a methodological commitment acquired by the University of Deusto to adapt degree and master programs to European Higher Education Area.

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In general, the task of preparing faculty to meet these challenges relies in faculty professional development programs. Literature stresses that these programs must address changes in beliefs, knowledge, and habits of practice, in order to achieve changes in the quality of teaching and learning (Gibbs & Coffey, 2004; Kember & Kwan, 2009; Light & Calkins, 2008; Putnam & Borko, 2000; Smyth, 2003). Lloyd and Cochrane (2006) also argue that theory and practice must be interwoven in order to provoke changes in faculty’s conceptions of learning, thus “theory informs practice and practice informs theory in reflective and constructivist ways” (p.17).

Literature also shows that traditional professional development (event-based, one-hit training workshops) has been shown ineffective in impacting on teaching practice (Lock, 2006; Schlager & Fusco, 2004). According to Lock (2006), the use of the transmission model from experts to faculty; the one-shot and one-size-fits all workshops; and the failure to address context-specific differences are some of the reasons for the low impact of professional development programs in supporting change in teaching practices. These shortcomings have provoked an interest towards community inspired models.

In the last decade, research has shown that communities of practice (Wenger, 1998) can be a catalyst to improving faculty’ professional practice (Schlager, Fusco, & Schank, 2002; Sherer, She, & Kristensen, 2003). The notion of building learning communities has become a very valuable mean for engaging faculty in meaningful and effective professional learning. (S. A. Barab, MakInster, & Scheckler, 2004; Gallant, 2000; Lisewski, 2005; Schlager & Fusco, 2004; Wing Lai, Pratt, Anderson, & Stigter, 2006). Moreover, the technological infrastructure currently available in many higher education institutions have the potential of creating online and distributed learning environments that can facilitate and expand faculty professional development. According to Lock (2006), for this to occur it is necessary a provision of ongoing opportunities for professional growth based on faculty needs and a shift in the current perceptions of faculty about professional development.

Despite its potential, there are many obstacles the habit this kind of professional learning. Many of the faculty members do not have the knowledge, experience and skills necessary to work as a productive member of a community of practice. They are very pressed for time, with growing demands of teaching and research, and not always receive incentives or support from the institution for participating in professional development activities.

Under this context, this chapter presents some partial results of a research which aims to investigate whether a community of practice-oriented professional development model is able to open up to a new practice for faculty and provide the ongoing support which is needed for transforming their pedagogical beliefs and practice (Coto, 2010). The study took place in the Universidad Nacional (UNA) in Costa Rica during 2008 – 2009, with a group of 27 participants from five geographically distributed campuses. The study was the first initiative of UNA in the field of online teacher professional development, and it was focus on the introduction of ICT and POPP (problem-oriented project pedagogy) as agents to change teaching practice (Coto, 2010).

THEORETICAL FRAMEWORK

The study has its roots in the interfacing of two main theoretical areas: professional development in higher education and learning in communities of practice.

Professional Development

There are several understandings of professional development. According to Bligh (2005), professional development aims to improve practice, to develop strengths and skills, and to manage change. It is expected to result in improved teaching performance and better learning outcomes for students. For Dall’ Alba and Sandberg (2006), professional development comprises formal and structured courses or activities as well as the informal development of professional skills that occurs in the workplace. In the same respect, Knight et al. (2006) assert that professional learning is “the development of capabilities that occurs as a consequence of situated social practices” (p.320).

This stresses the importance of non-formal learning that takes place in the daily events. For the authors, formal professional development such as courses and workshops should be seen as a complement and should not displace the situated and informal social learning.

Research has identified fundamental principles which should support professional development learning environments (Gallant, 2000; King, 2003; P. A. Lawler & King, 2000; P. Lawler, 2003; Layne, Froyd, Simpson, Caso, & Merton, 2004; Light & Calkins, 2008; Lloyd, Cochrane, & Bearnes, 2005; Smyth, 2003). For Lloyd et al. (2005) there are four components of effective professional development: (1) context, (2) time, (3) community, and (4) personal growth. In their opinion, effective professional development must address faculty immediate and ongoing needs; it must be timely, prolonged, ongoing and sustained; it must encourage sharing stories, experiences, and collaboration with colleagues, expanding professional and personal networks; and it must enhance faculty status within the learning community.

In the same vein, Lawler and King (2000) present six adult learning principles to guide professional developers: “create a climate of respect, encourage active participation, build on experience, employ collaborative inquiry, learn for action, and empower the participants” (p.21-22). This indicates that professional development programs have to consider the characteristics of faculty as adult learners and be aware of their problems, pressures and concerns, but also, according to Sorcinelli et al. (2005), they must be aligned with the institution mission and promote institution-wide dialogues.

Some authors (Gibbs & Coffey, 2004; Light & Calkins, 2008; Smyth, 2003) found that when faculty have opportunities to explore, discuss and reflect about their teaching conceptions and practice, they become less resistant towards different pedagogical approaches. Layne et al. (2004) also highlight the importance of reflective practice. In their opinion, without reflective practice to examine their beliefs, assumptions, values, and new ways of thinking about teaching and learning, faculty will turn to what is familiar to them and continue with their current practices. Universities respond with different approaches to the need of professional development for the faculty staff, providing programs with different pedagogical perspectives, duration, content, mode of delivery and timing. In general, participation in these programs is voluntary, but the faculty is encouraged to participate with various incentives, such as better position or salary. However, staying updated consumes time and effort, and time is a scarce resource for faculty. This situation is even more critical for part-time and short-term faculty who, in many universities, are prevalent and who could be more reluctant to invest additional time in learning. Under this context, it turns important to consider that networked technologies can provide a more flexible professional learning experience for faculty that involves participation in a community of learners, and at the same time, may encourage them to learn new values, and practices through participation in new forms of activity (Coto & Dirkenick-Holmfeld, 2008).

Communities of Practice

Wenger et al. (2002) define a community of practice as “a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment” (p.34). In this perspective, learning
A Distributed Community of Practice to Facilitate Communication

is not considered as an individual and isolated enterprise, but is grounded in the daily activities and is intrinsically linked to the context in which knowledge is applied, hence learning is acquired through engagement in practice and through experience (Wenger, 1998).

Wenger (1998) defines a community of practice along three dimensions. These dimensions are a domain of knowledge that creates a common ground and sense of common identity, a community of people who care about the domain and create the social structure that facilitates learning through interactions and relationships with others, and a shared practice that the community shares, develops, and maintains to be effective in its domain. Other researchers have proposed similar definitions for communities of practice. For example, Hara (2000 cited in Hara, 2004) defines communities of practice as “informal networks that support professional practitioners to develop a shared meaning and engage in knowledge building among the members” (p.11). In similar way, Barab et al. (2004) define communities of practice as “a persistent, sustained social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise” (p.55).

Besides situated learning, another important principle in communities of practice is reflective practice. Reflective practice is grounded in the assumption that knowledge is derived from the professionals’ own experience as well from formal knowledge, and that each informs the other (Schön, 1987). In a community of practice, meaningful reflections with other members of the community create opportunities to engage in the analysis of problems considering different perspectives, and consequently generating new knowledge through collaborative reflection, observation and discussion. Wenger’s social theory of learning (1998) encompasses four components: (1) learning as experience (meaning); (2) learning as doing (practice); (3) learning as belonging (community); and (4) learning as becoming (identity).

In his perspective, learning is a process of social participation. It is a practice of identity formation and modes of belonging, and not just accumulating skills and information.

Distributed Communities of Practice

A distributed community of practice is “any community that cannot rely on face-to-face meetings and interactions as its primary vehicle for connecting members” (Wenger et al., 2002, p. 115). Growth and evolution of a community of practice relies on the effective communication between members, and in a distributed community of practice, communication partially relies on technology. Technology must contribute to cultivating the community of practice in several ways: connecting members, supporting team work, building knowledge repositories, building a sense of community, encouraging participation, fostering identity and presence, mentoring and online instruction (Wing Lai et al., 2006).

Technology infrastructures also help overcome barriers that do not occur in face-to-face communities of practice, such as visibility and presence (S. Barab et al., 2004; Wenger et al., 2002). In a distributed community of practice, members do not necessarily share work contexts, nor are they geographically proximate, so it becomes more difficult to share the knowledge and consequently the evolution of the community. Casual conversations and informal discussions that promotes physical proximity are the most difficult to create in a distributed community of practice (Hinds & Weisband, 2003). In this respect, Wenger et al. (2002) note that when members need to make a special effort in order to connect to the community, the participation can be less frequent, increasing the inertia in the community, and this inertia needs to be overcome by the community, making the delivery of tangible value for its members even more important.

Hence, cultivating and sustaining distributed communities of practice is significantly more difficult than sustaining face-to-face communities. In addition, a distributed community of practice usually needs a formalized structure to organize activities that would enable doing, becoming, experience and belonging for the members (Schlager et al., 2002).

Communities of Practice as a Model of Professional Development

Traditional professional development is criticized for being fragmented, unrelated to classroom practice and for lacking follow-up activities. The delivery model has been shown ineffective in impacting on teaching practice. According to Schlager and Fusco (2004), a community of practice can play an integral role in faculty professional development, because it is “a process of learning how to put knowledge into practice through engagement in practice within a community of practitioners” (p.124, emphasis in original).

By using a community of practice framework to develop professional development programs, it is possible to provide faculty with opportunities for collaboration, and co-construction of knowledge. The community of practice perspective brings a learning environment where they are invited to participate and reflect with others who share the same interest in improving their practice. Being part of a community enables them to explain their understandings about different topics and problems, and to examine them from multiple perspectives. Furthermore, distributed communities of practice help address the well-known problems of teaching schedules and time demands that limit the opportunities to participate in face-to-face events.

The relevance of the community of practice framework for faculty professional development relies on its approach to learning as a social process. In other words, it provides faculty with possibilities for experimentation with new practices and consequently with the opportunity to transform themselves through engagement and critical reflection with colleagues. And this transformation not only concerns new knowledge and skills, but also a higher professional self-esteem and a sense of professionalism.

However, in designing distributed communities of practice for professional development, it is important to be aware of limitations that may hinder its potential benefits. Some of them are:

- Technology: Network infrastructure ought to be in place to provide access and to suit the needs of the community. The instability of the technological infrastructure while faculty participate in the online activities can become an obstacle to their participation (Schlager et al., 2002).
- Learner Readiness: Often, faculty members are not ready to work collaboratively in online environments, nor want to participate in online discussions or activities. In order to participate effectively in an online environment, faculty need to be self-motivated, self-confident and have the required technological skills (Schlager et al., 2002).
- Institutional Culture: The institutional culture in which the community is embedded can act as an obstacle to community development (Lock, 2006). On one hand, multiple tasks and busy schedules limit faculty participation in the community and, on the other hand, the transition from working in an insular way to a collaborative environment where they have to share their ideas entails a redefinition of both, faculty staff and the institutional culture.
As an opportunity to explore transformative and innovative approaches in the field of professional development.

The project was supported by UNA-Virtual and the Division of Teaching of UNA under the institutional name “Virtual Community of Practice for Educational Innovation at the Regional Campuses of the Universidad Nacional” (Coto, Mora, & Corrales, 2008). For its development, it received a funding support from FUNDER (University Funds for Regional Development) in order to cover the expenses related with face-to-face meetings and hardware infrastructure to support the online interaction of the community.

The project began in March 2008 with a group of 27 participants from five geographically distributed campuses (Liberia, Nicoya, Perez Zeledon, Coto Brus, and Puntarenas) who have diverse fields of knowledge and diverse approaches to teaching and learning as results of their own professional experiences and context. Participation in the project was voluntary and they understood that they could withdraw from the research at any time.

Given the geographical distribution of the regional campuses, the project used networked technologies for two purposes: (1) contributing to the reduction of space and time barriers favoring the interaction among faculty; and (2) supporting a more sustainable and scalable faculty professional development program within the institution (Schlagel et al., 2002). During ten months (February to November 2008) the faculty participated in collaborative activities that helped them to get to know each other, to develop trust and to improve their pedagogical and technical knowledge. The learning environment was designed as a framework for flexible and blended learning, rich in challenges and interactions around ICT and the philosophy and methodologies of problem and project based learning - POPP. The faculty was considered as the main agents of their professional development.

The Moodle system is the learning management system (LMS) used by UNA to support online courses or face-to-face courses enhanced by technology. In this study, it was therefore decided that the online interaction would rely on an "online meeting space" created under the Moodle platform.

THE RESEARCH APPROACH

The aim of the study was to explore to what extent a designed professional development framework based on communities of practice can support communication, collaboration and learning among faculty. One of the objectives in achieving this aim was to develop principles that could be used to design professional development programs that can effectively support faculty in the process of transforming their teaching practices through the introduction of technology and problem and project based learning. These objectives were theoretical and practical: design principles with a theoretical basis and their application in a real context environment, therefore a suitable approach was one that proposes design principles and also guide the implementation of them in a real context.

Design-based research is a methodology originated in the pragmatic paradigm. The Design-Based Research Collective (2003, p. 5) defines design-based research as “an emerging paradigm for the study of learning in context through the systematic design and study of instructional strategies and tools”. In achieving its aims of improving educational designs and advancing understanding of learning, design-based research draws on the full range of social science research methods, combining a variety of quantitative and qualitative approaches (S. Barab & Squire, 2004; Design-Based Research Collective, 2003; Sandow & Bell, 2004). In this methodology, researchers collaborate with participants to achieve theoretical and pragmatic goals that change and improve educational practices.

The intervention carried-out in the study was mainly addressed through qualitative methods where “the basic subject matter is no longer objective data to be quantified, but meaningful relations to be interpreted” (Kvale, 1996, p. 11). The main sources of data were online discussions, face-to-face meetings, and reflection workshops. The information was collected through questionnaires, interviews, workshops and participant observation. Given the strong online component of the intervention, over a period of ten months, online observation was carried out almost on a daily basis. All recorded sessions (face-to-face meetings, interviews, and workshops) were transcribed for data analysis. Online forum discussions were downloaded into text files. The textual data available for participant observation research include postings in discussion forums, e-mails, chat room interactions and produced artifacts. All the data gathered was analyzed through a recursive process to generate codes. Through the process of coding, collecting, grouping and organizing the data, several codes emerged that were grouped into networks or theme groups.

DESIGNING AN EDUCATIONAL INTERVENTION

It was the intention of the study to explore a new way of addressing the faculty professional development, with a shift of focus from formal training to learning in practice (Wing Lai et al., 2006). The main premise was that learning is a participatory process that involves “doing, becoming, and belonging, not simply acquiring” (Ng & Hung, 2003, p. 62). Therefore, the study aimed to design an educational intervention for faculty professional development based on the theory of communities of practice.

Wenger (1998) argues that while you cannot design the learning you can design for learning. Moreover, Wenger’s conceptual architecture for learning provides a framework to design a social learning space that affords the evolution of a community of practice. This framework is
expressed in terms of four dualities - reification and participation; designed and emergent; local and global; and identification and negotiability; and three modes of belonging - engagement, imagination and alignment. The duality of reification and participation creates two kinds of affordances for negotiating meaning as it concerns the need of creating a balance between resources for learning (reification) and the activities that make use of those resources (participation). In the context of the study, this dimension entailed bringing together a group of faculty through online and physical spaces, and providing them with a balance between opportunities of participation and resources they use in support of this participation.

With respect to the designed and emergent duality, Goodyear et al. (2001) suggest that designers can provide organizational forms, learning tasks and learning spaces but it is participants who might transform them into communities, activities, and places. In order to acknowledge this duality, the design and facilitation of the learning environment was flexible enough to allow emergent activities, norms and to consider faculty agendas and needs. The local and global duality represents the fact that any community of practice should be able to link its local practices to more global frameworks and have an influence upon them (Brosnan & Burgess, 2003). In the study, there was a need to create a balance between faculty particular and immediate needs and a more global institutional change agenda. The core concepts and practices that were negotiated in the community need to have local significance to each participant (and each regional campus) but at the same time be of global relevance to the whole community and to the university in general.

The identification and negotiability duality refers to the degree to which members identify with the community and the extent to which they are empowered to shape the community. It has an effect on the formation of the identity through the mix of participation and non-participation (Wenger, 1998). For the goals of the professional development program it was fundamental, as a first step, to ensure that the design of the learning environment was simple enough to allow faculty to participate in the community life, and to build an identity through this participation.

According to Wenger, the challenge of design is "to support the work of engagement, imagination and alignment" (1998, p. 237). In this respect, to design the learning environment entails offering faculty places of engagement; experiences and resources to build an image of themselves; and possibilities of having an effect on the world. Hence, engagement, imagination, and alignment are modes of belonging by which faculty can take part in the practice of the community, learn about the practice, and shape their identities.

Learning by engagement requires access to participation and reification. In this perspective, faculty needs to have access to other colleagues, feel competent to contribute to the shared goals and to the development of the practice. Learning by imagination entails offer faculty opportunities to imagine themselves with a new set of competences and knowledge and with a new trajectory within the institutional context. In that sense, imagination is strongly linked with identity and with the faculty disposition for learning. Finally, through learning by alignment, faculty should become part of a bigger institutional educational community, contributing with their engagement to a transformation of the institutional educational practice.

Under the above context, the design of the educational intervention was driven by the main premise of being transformative (Gibbs & Coffey, 2004; Laurillard, 2002; Lawler & King, 2003; Light & Calkins, 2008), thus it aimed to offer participants an opportunity to transform their identity, trajectory and practice, and as such it was understood in three phases: Designing for change, Experiencing the change and Understanding the change. Each phase had a particular goal and used specific design, facilitation, support strategies and resources.

Phase 1: Designing for change. The objective in this phase was to offer the faculty members opportunities to participate in a number of collaborative activities that helped them get to know each other, to develop trust, and to improve their pedagogical and technical knowledge. These activities were the first steps to promoting the formation of the community of practice (Barab, Kling, & Gray, 2004). During this phase, the online interaction was fundamental. The expected main outcome of this phase was the collaborative design of a pedagogical intervention to be implemented in their classrooms. For this purpose, the participants were divided into inter-campus groups in order to identify a significant educational problem and to discuss different perspectives of solutions. It was considered important to form the groups with members from different regional campuses in order for them to truly experience the process of communication and collaboration using networked technologies and to expand personal networks. In this phase, the focus was on negotiating individualities and the process of transforming into a productive group with a common purpose.

Phase 2: Experiencing the change. The goal of the second phase was to enable faculty to make meaning of their learning process from direct experience (Gallant, 2000; King, 2003). They learned through engagement in the challenge of innovating their daily practice and through reflection on doing (Schön, 1987). In this phase, participants apply their own educational interventions with students. In this process, the group work was very important, the members were encouraged to support each other and to discuss and solve problems emerged during the implementation of the intervention in the classroom. There were no face-to-face meetings planned in this phase.

Phase 3: Understanding the change. The goal of the third phase was twofold, firstly, for the learning process to be truly effective, it was important that faculty evaluated their experience with the implementation of their own pedagogical interventions and reflect upon it. Secondly, given the nature of the learning experience and the process of community cultivation fostered since the beginning, it was considered fundamental to understand the contribution of the community and the role of faculty participation within the community as enablers of teaching practice transformation. This phase combined online and face-to-face activities, both of them oriented towards reflection and sharing of the results of faculty' pedagogical interventions.

In general, faculty was expected to work four hours per week in their own time. The duration of the educational intervention was 32 weeks. A description of the initial design of the intervention, with objectives, methodology, expected workload and norms of participation was given and discussed with the participants in the first face-to-face meeting. It was also important to consider two aspects regarding the participants: (1) only 30% of them had a permanent position in UNA, and (2) only 30% had previous experience with online or blended learning environments. Both aspects had direct impact on the design. The first aspect implied a greater complexity in the availability of faculty for professional development processes and on their perception and on their perception about institutional incentives. The second aspect suggested that participants needed basic training in how to gain access to the online learning environment and in how to use the synchronous and asynchronous communication facilities. This training was fundamental in order to allow
them to identify with the community and to create trajectories from peripheral participation to engagement with new practices of POPP-based teaching with technology.

One key resource in the professional development environment was the facilitator. She was an experienced pedagogical advisor member of UNA-Virtual. Her role was to support the participants throughout their learning process. She was in charge of providing direction to ensure a productive learning experience - modeling, guiding, reinforcing, reminding - but with the goal of gradually increasing participants’ ownership and decreasing facilitator control (S. A. Barab, Barnett, & Squire, 2002; Putnam & Borko, 2000).

PRESENTATION OF FINDINGS

There were two types of data sets that contributed to this study. One set was comprised by the interviews and workshops which included spoken face-to-face discussion information, and the second set was drawn from observations, discussion forums and questionnaires, including only written information. This section presents the results related with the overall patterns of participation, engagement and identification with the community, and learning.

Participation in the Community

The professional development model proposed in this study comprises several frames or modes of engagement for faculty: (1) online activities (chat, discussion forums, reflection forums, and group work), (2) face-to-face activities (meetings, workshops) and (3) the design, implementation and evaluation of a pedagogical intervention. Table 1 offers information about the participation of the faculty who were members of the community for more than three months.

Table 1 shows each member’s percentage of participation in each kind of activity.

- Column (A) refers to the participation in the face-to-face-activities. There were six f2f meetings, so the percentage is calculated dividing the number of f2f activities in which each faculty participated by the total of f2f activities. For example, P1 participated in 5 f2f meetings, thus she has a percentage of 83% (5/6).

- Columns B, and C refer to online participation (mainly discussion forums). Column (B) deals with active participation, meaning that the participant wrote at least one posting in the forum. Column (C) shows passive participation, meaning that the participant only visited the forum (and likely read the discussion). The percentages are calculated considering the number of discussion forums (12 in total), and the number of forums in which the faculty participated (independently of the number of postings that she/he wrote in that forum). For example, P1 had an active participation in six discussion forums (6/12=50%), and a passive participation in two (2/12=17%).

- Column (D) shows whether the participants implemented in their classrooms what they learned in the study.

The next sections will further analyze the issue of participation in three manifestations: online participation (including group work), face-to-face participation, and the development of the pedagogical intervention. In many cases, the words of the participants will be used to better express the meanings of their experience.

Online Participation

Participation in online activities comprises participation in chats, blog reflection, discussion forums, and group work. This section briefly examines each of them, giving major focus to the participation in the discussion forums because they were considered the leading online activity as it was the space that best promoted the negotiation of meaning and the sharing of stories and experiences.

- Chat Conversations: 21 faculty members participated over time in 23 chat sessions. There were an average of five participants in each session, with a maximum number of participants of 14 and a minimum of 2. The synchronous nature of the chat allowed direct interaction with everyone in the virtual room and the social space that was recreated were extremely valuable to the formation of a community identity. Participation in the chats was high at the beginning of the intervention, but then fell almost to a zero. Some of the reasons for the decline were: (1) The messy nature of the talks was overwhelming for some faculty who could not follow the flow of conversation; (2) some faculty, mainly from Coto Campus and the Marine Biological Station frequently experienced connection problems that hindered their participation;
and (3) the chat sessions were transformed by some of the participants in a place in which to share all kinds of topics, such as weather, politics and national events. For other participants, those issues were irrelevant; therefore they were unwilling to invest their time in this activity.

- **Blog Reflection:** The blog was conceived as a space of personal reflection on the learning process, as such its value as an activity was considered very high, both from the viewpoint of the learning experience at individual and community level. The personal blog was aimed at providing an ability to trace the individual learning through the entire process. However, the faculty was rarely willing to use the blogs. An average of eight participants wrote a reflection on the blog at six different times during the study. The entry of the blog with more participants (22) was regarding a personal presentation, and the entry with fewer participants (1) referred to blended learning. It does not mean that the faculty did not reflect on their learning process, just they were not engaged in keeping a personal blog. The process of reflection mainly took place in the face to face meetings and in the discussion forums that were considered meta-reflection spaces.

- **Discussion Forums:** There were a total of twelve discussion forums. By nature, four of them were considered reflection forums, and the remaining eight targeted a specific subject domain, such as Project-based learning; UNA pedagogical model; Modalities of learning: challenges and limitations; and Design of educational materials. The twelve forums were distributed from March to November 2008, and each one lasted between one and two weeks.

Table 2 shows the overall participation of faculty in each of the discussion forums. It considers the "active" participation, meaning producing a post, and the "passive" participation, meaning reading but not writing.

<table>
<thead>
<tr>
<th>Table 2. Participation in online discussion forums</th>
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<tbody>
<tr>
<td><strong>Discussion Forum</strong></td>
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<td>#1: March</td>
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<td>#2: March</td>
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<td>#3: April</td>
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<td>#4: April</td>
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<td>#5: May</td>
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<td>#9: July</td>
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<td>#10: August</td>
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<td>#11: October</td>
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<tr>
<td>#12: November</td>
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</table>

The table includes the date of beginning of each activity, in order to appreciate how participation changed through time. The last column shows the number of postings in each of the discussion forums. As it can be seen, the "global" community participation was very irregular, it had a tendency to increase from March to April, and then started to decrease until June when it was at its lowest point. Participation started again to increase in July and decrease in August, just to increase again in October. In general, the lower levels of participation were from June to August. It can be associated with various factors: (1) in June-July, the faculty was on institutional holidays, (2) the topics were not interesting for them; and/or (3) in July-September, they were focused on implementing and evaluating the pedagogical innovation in classroom. Even when participation was irregular, the data show than in 10 out of 12 forums, active participation was higher than passive participation, meaning that most faculty members were willing to contribute with an opinion rather than just reading the others' contributions.

It is worth noticing that even "passive" participation in the online discussion forums was an activity that requires time. As faculty P7 explained:

> It is interesting how the level of participation of forums was... different. For me personally, and I understand that for other people too, even if we did not participate, we were always close to the community, reading the existing information. And when I say reading, I do not mean a quick look at the website. Indeed, participation in forums and other activities involving the use of quality time. It is not enough to read the opinions of one or two people, it is essential to track all the discussion if you want to get an overall understanding. (P7; Forum #11)

Table 3 shows the individual pattern of participation for each member in the discussion forums. From Table 3, it is possible to deduce that all participants visited the community at some point and were able to see the discussions. It can be seen that there was a high diversity in participation, from almost null participation (P2 and P19) to 100% participation (P8). It is also possible to appreciate that, in general, individual active participation (marks with "1"), in online activities is higher than passive participation (marks with "0").

Research suggests that there are typically three distinct levels of participation in communities of practices: (1) The core group who participates intensely in the community and typically takes on leadership roles; (2) the active group who attends and participates regularly, and (3) the peripheral group who, while they are passive participants in the community, still learn from their level of involvement. Typically, this latter group represents the majority of the community (Lave & Wenger, 1991; Wenger et al., 2002).

Table 3 shows that three participants (P8, P11 and P16), stood out as successful and engaged community members. These faculty members were considered the core participants in this study. The active participation online is considered a good indicator to be considered in determining the category of "core group", because it was in the online environment where most discussion, negotiation of meanings and sharing took place.

In order to illustrate the behavior pattern of a core member, I use faculty member P8 as example. Undoubtedly, he was the highest performing participant in the study. It appears that the distributed community approach worked very effectively for him. He was a well respected member in his regional campus. P8 was a full-time professor and was also working on the curriculum of a blended master program. Furthermore, he had former experience with online learning as a student in an international master program. Throughout the intervention period, he stood out as a person interested in thinking about the way the community of practice was developing and contributed ideas and suggestions about how the community should proceed. Many of his comments were empathetic and supportive of others in the community. He used to sum up key arguments from the readings added personal thoughts, new data and opinions about the key points made. Many times, his entry, at least in part, set the tone for following entries in the discussion.

As an example, the following quote shows how, in a discussion forum which he offered to moderate, he used different ways to address the members of the community and trying to increase their participation.

In the forum I was looking for: With the researchers: a commitment to participate (moral obligation). It worked. With English teachers in the community: looking for motivation, I made questions in English to them ... it did not work.

With colleagues from the campus: I talked with them personally to motivate participation. It partially worked. Furthermore, I used the information
A Distributed Community of Practice to Facilitate Communication

Table 3. Individual participation in the discussion forums

<table>
<thead>
<tr>
<th>Faculty Members</th>
<th>Participation Over Time in the Discussion Forums*</th>
<th>Total Number of Posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>1/1/1/0/1/1/0/1/0/1</td>
<td>13</td>
</tr>
<tr>
<td>P2</td>
<td>0/0/1/0/0/0/1/0/0/0</td>
<td>0</td>
</tr>
<tr>
<td>P3</td>
<td>1/1/1/1/1/1/1/1/1/1</td>
<td>11</td>
</tr>
<tr>
<td>P4</td>
<td>1/1/1/1/1/1/1/1/1/1</td>
<td>11</td>
</tr>
<tr>
<td>P5</td>
<td>0/1/0/0/0/0/0/0/0/0</td>
<td>7</td>
</tr>
<tr>
<td>P6</td>
<td>0/1/0/1/0/0/0/0/0/0</td>
<td>0</td>
</tr>
<tr>
<td>P7</td>
<td>0/1/0/1/0/1/0/1/1/1</td>
<td>16</td>
</tr>
<tr>
<td>P8</td>
<td>0/1/1/1/1/1/1/1/1/1</td>
<td>82</td>
</tr>
<tr>
<td>P9</td>
<td>0/1/1/1/1/1/1/1/1/1</td>
<td>24</td>
</tr>
<tr>
<td>P10</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>5</td>
</tr>
<tr>
<td>P11</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>3</td>
</tr>
<tr>
<td>P12</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>P13</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>P14</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>3</td>
</tr>
<tr>
<td>P15</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>P16</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>P17</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>P18</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>6</td>
</tr>
<tr>
<td>P19</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>12</td>
</tr>
<tr>
<td>P20</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>10</td>
</tr>
<tr>
<td>P21</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>10</td>
</tr>
<tr>
<td>P22</td>
<td>0/0/0/0/0/0/0/0/0/0</td>
<td>10</td>
</tr>
</tbody>
</table>

* For participants who were members of the community for more than three months
  1 = active participation (posting a contribution)
  0 = passive participation (just observing)

Considering the above observations, the forum was a "complete disaster" because almost nothing worked. However, as moderator, I am grateful and peaceful, it is strange isn't it? I shared the techniques that I tried to implement, maybe when you have to be in charge of moderating a forum, you can use them and thus have some ideas on how to cope with the situation... that is what it is all about, right? (P8; Forum #9)

From his reflection, it is possible to read a bit of frustration because the participants did not respond to his call. However, his motivation was so strong that he was satisfied with the process:

He was challenging other members of the community to think further and look at other possibilities. After the end of the study, he also proposed a strategy to give sustainability to the community. P8 is therefore an example of what it means to be a core member in a community of practice. He was someone who supports, encourages, provides ideas and options, and asks challenging questions. In addition, he was able to do this regularly. The other core members, and sometimes a number of active members, also assumed this type of function within the community, showing an interest in establishing and maintaining a quality learning community in an online context.

Regarding the active group who attended and participated regularly, seven faculty members can be considered to belong to this group: P1, P3, P7, P10, P14, P15, and P22. The last one can be considered a good example of an active participant. She introduced herself as a university teacher with no experiences with technology and online learning, but expressed a strong interest in learning, and in particular in the prospect of the community experience. She began very enthusiastically in the community and also took a leading role in her group. Her contributions in the dialogues show her as a faculty keen to discuss ideas, readings, teaching practice and teaching issues. She was also willing to re-evaluate her beliefs on the basis of arguments discussed in the community.

However, she felt and declared herself as not akin to online communication, and promptly stopped her participation in the discussion forums. Despite this, she found her way within the community and became one of the most active participants in face-to-face meetings, she helped the facilitator in organizing the groups in two of the regional campuses and also put herself in a position as an agent of change trying to motivate others to innovate and experience with technology. Overall, she provided good ideas to the community and effectively used her experience in the community to improve her technical skills and pedagogical knowledge. She expressed having gained useful ideas from the community and from the professional development process.

The fact that our colleagues observed us planning lessons in a different way and saw that my students, their students as well, were always awaiting what was new... had promoted curiosity and allowed them to think about the need to grow and produce new forms of learning in means such as the community. I think now, we all must assume the leadership... we must be communicators of the process and urge our colleagues to get involved in this process. (P22; Forum #11)

P22 is a good example of the way in which a newcomer can become fully engaged in a new practice and gain a great deal from a community of practice approach to professional development.

The last group, the peripheral ones, is formed by members who even though they were passive participants in the community, still might learn from their level of involvement. Twelve participants belong to this group: P2, P4, P5, P6, P9, P10, P13, P17, P18, P19, P20 and P21, and they represent the biggest group within the community. From this group, there were four members who withdrew from the study in the early stages (May to June): P5, P17, P18, and P20, so they did not participate in the pedagogical innovation project.

P18 is a case that may illustrate the process of a participant who had a peripheral participation while he was in the community and who finally decided to terminate his participation in it. From the outset, P18 expressed difficulties with the online platform and the correct use of the facilities on the website. In the beginning, he asked for help and he was supported in various ways (face-to-face and via telephone) by the facilitator. After that he started to go through the website of the community and participate in some discussions. However, in...
some of his contributions, he expressed that things did not work as he expected, he felt alone when he visited the community.

I just want to say that it is not working as I thought. It seems that there are activities that we are not doing and are difficult to do, and it does not seem to make sense... is a problem... for some, because we only have a few hours to participate and need more... others definitely do not know the meaning of this, or because upon entering the website, you feel lonely... is like writing in the wind... something happens. (P18; Forum #3)

Moreover, his expectation of the professional development process was to learn to use the virtual classroom, so he considered the process and content too theoretical and the readings too complex. He also expressed that the heavy demands of his work made it difficult to participate in the activities, which, in addition, were very demanding for him. To some extent, it could be concluded that the design of the professional development process and the community approach failed to engage P18 in his professional learning; therefore he made an early decision to terminate the process. On the other hand, one could argue that he did not give the process enough time to see how it really worked.

Group Work

Group work was another activity designed to be carried out mainly in the online environment. The groups were established to create mutual dependencies between the participants and to support the individual construction of meanings through the construction of shared understanding, negotiation, confrontation and commitment (Dirckinck-Holmfeld, Jones, & Lindström, 2009). The groups were also organized inter-campuses to enable participants to truly experience by themselves the learning process using networked technologies. This decision was aligned with the principle of constructive activity (Gallant, 2000) which suggests that in order to increase the opportunities for change, faculty should experience the teaching and learning conditions they plan to create for their own students.

In addition, group work was considered fundamental for the design of the pedagogical intervention that the participants would implement from July to October 2008 with their students. The groups were envisioned as the places where members discuss, analyze and take decisions. However, there were a lot of organization and coordination problems, as well as misunderstandings and difficulties with setting up agreements. The activity in each group was very irregular, and even though the group members were visiting the group online space regularly, they were, in most cases, unable to make decisions, and consequently little progress happened, as explained by P11:

For two weeks I was uploading documents, sending emails, and creating facilities for the group, and nobody reacted. Some people entered to the group but did not accomplish any task requested, so at some point I made the decision to continue with the community because I wanted to continue my learning, but not with this group because it was rather a distraction. (P11; face-to-face meeting, June 2008)

Community members argued lack of time, lack of familiarity with technology, lack of group culture and lack of motivation and commitment as reasons for why the group work was not as productive as hoped for. It was evident that working in virtual team environments requires skills not inherent in the participants, as expressed by P15:

Although many of you would not believe me... for me writing in this forum is a triumph... although time has been an important factor in limiting my participation, the main factor is the lack of knowledge of the platform because it is an entirely new experience for me. (P15; Forum #3)

As Johnson (2001) states, these skills include not only operation of the technology, but skills in asynchronous and synchronous discussion, as well as online collaboration. The complex and somehow frustrating online group dynamics weakened the cohesion among members of the community and it was a factor that negatively influenced faculty participation in the following activities.

Once discovered that the online group work was not working as intended, the group work was moved to the local campuses in a face-to-face modality. The intention of this change was to preserve the practice of sharing and peer-support beyond the online means. The new strategy worked well in three campuses: Nicoya, Liberia and Puntarenas. The participants supported each other in the process of designing and implementing the pedagogical intervention. In the other two campuses, Perez Zeledon and Coto Brus, the support that took place between the members of the group was quite low. Those who made progress in the program were working in rather individual ways.

Taking Nicoya's group as example, it was clear that while the faculty members were not participating much online, they were gaining value from the community. They worked as a sub-community, where they read the suggested material, discussed it in their group, and used it in their classrooms to extend their teaching repertoire. Even members who were considered classical peripheral participants (P2 and P19) appeared to gain from this sharing.

There is an accumulated amount of experience among my fellow that makes my work easy... we work together; discuss; and this really makes things easier (P19; Workshop Nicoya, October 2008).

Nicoya's example also shows that the online community dimension of the professional development approach is too difficult for faculty whose online technical skills are weak.

I think there was lack of preparation to use the platform's tools, although there were instructions to do things, I would not have been able to carry them out if I had not had the help of these two colleagues... I was needing more tools to better participate, and to feel that I somehow contributed to the community (P6; Workshop Liberia, October 2008).

In general, the data for online participation suggests a general pattern of higher ability to participate to those members with greater technology experience and background. The inability for the groups to work in an effective way was definitively a factor that negatively influenced academic participation in the community, as one of them expressed in a comment in the first questionnaire:

I think the only mistake [of the intervention] was to separate us into groups when we were just starting to become comfortable with the community. Then, in the groups, we came to feel isolated. (Comment - first questionnaire, June 2008).

To some extent, the unhealthy group dynamics weakened the cohesion among members of the community and even led some faculty to leave the community.

Face-to-Face Participation

Table 4 shows overall faculty participation in the six face-to-face meetings that took place during the intervention. Two of these meetings (June and November 2008) were global meetings in Heredia with all participants, and the other four were carried-out in each of the regional campuses. The data shows that participation in face-to-face meetings was very regular which confirm the preferences of many community members for face-to-face communication, as P13 commented:
I believe that face-to-face meetings are important in these processes [innovation of teaching practices], especially when the participants have no experience in this kind of activity. Nor should we lose face-to-face discussions and exchange of ideas with other participants, perhaps this would be one way that helps members of the community not to lose their motivation. (P13; Forum #11)

There were few exceptions to this appreciation. P11, P14 and P16, always expressed a preference to communicate in an environment that encourages debate beyond the physical limitations. For these members, online communication offers the flexibility not previously available to carry out collaborative learning activities; however the three of them were competent in using technology as a means of communication. The differences between online participation and face-to-face participation may be illustrated by P2. He participated in all face-to-face meetings but had not written a post in ten months (see Table 1).

In general, time was the most important factor that hinders participation. In most cases, there was always a tension between faculty workload at the university, personal time and time for professional development. Daily activities at the university often interfered with the activities proposed in the community. Faculty members were struggling to bring the community into their daily routine. Normally, many of them did not have serious problems with attending face-to-face meetings, but found that time for online participation was much more difficult for them.

### The Development of the Pedagogical Intervention

The literature points to the importance of providing opportunities to implement what is learned (Gallant, 2000; King, 2003; P. A. Lawler & King, 2001). As a further strategy for integrating knowing, acting and being, each participant designed, implemented and evaluated a pedagogical intervention in their classrooms in order to enhance some aspect of their educational practice. The purpose of this pedagogical intervention was to provide them with the opportunity to take risks, to do something new in their practice, and to address this intervention through a more professional way of teaching (meaning a process of reflection, planning, acting, observing, analyzing, documenting and communicating). In this respect, P6 expressed:

I wanted to promote creative thinking through the integration of different tools...for me it was a completely new experience and for the students an innovative way to learn, communicate and produce knowledge (P6; Face-to-face meeting, November 2008).

The activity was highly situated and authentic, and 15 out of the 18 community members who completed the professional development program, were able to go through the complete process. They pursued diverse goals in the design of their pedagogical interventions, such as motivating students (P14); making a more participatory course (P2 and P4); promoting reflection and analysis (P12); fostering collaborative work (P22); improving learning through the use of technological tools (P7 and P10); developing fundamental topics through the use of blogs (P1); and using technological tools to develop a project about local tourism (P3 and P6). The innovations were carried-out in courses from areas such as Education, Literature, Environmental studies, Tourism, Administration, Language, and Biology.

Findings show that despite of some problems related to time and perhaps energy constraints of busy professionals, this approach was highly successful in creating practical relevance for their learning. By being capable of making changes [with diverse levels of complexity] in their teaching, the community members felt empowered in their practice, role and future perspectives.

Several of us are building a more meaningful learning, with more participation from students. We are changing the traditional view that students have about education. (P4; Face-to-face meeting, November 2008)

### Engagement and Identification with the Community

Engagement defines who belongs to the community of practice (Wenger, 1998). Through the engagement in discussions and collaborative work, faculty members were confronted with the necessity to negotiate their current multiple practices and experiences. The new theoretical knowledge and training in ICT and POPP gave them methodological skills which had an impact on their professional practice. However, each participant found a unique place and identity within the community, and it was framed by their engagement and identification with the community. Table 5 indicates the faculty members' perceptions about their engagement with the community.

The data comes from the final questionnaire in November 2008 and was answered by twelve participants. In the following discussion, the sum of the values corresponding to "totally agree" and "agree" categories are considered as a positive answer to the respective item.

The community has a defined area of knowledge and practice (ICT+POPP) that shapes the domain and establishes the common ground which gives members the motivation to meet, discuss and share. From the data it can be concluded that 75% of faculty showed interest in the topics that were discussed and thus in the domain of the community. There were many instances where they made positive comments about being able to explore new pedagogical models and new educational technology. An example is P10's quote:

I was interested in issues that I would not have been able to explore otherwise, learn about new technological tools and their application. (P10; Workshop Puntarenas, October 2008)

It also can be seen that only 50% of the members stated that they participated regularly in the diverse proposed activities. This is important, because participation in a community of practice

Table 4. Participation in face-to-face meetings

<table>
<thead>
<tr>
<th>Face-to-Face Meeting</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting 1 - February</td>
<td>24</td>
</tr>
<tr>
<td>Meeting 2 - March</td>
<td>27</td>
</tr>
<tr>
<td>Meeting 3 - June</td>
<td>17</td>
</tr>
<tr>
<td>Meeting 4 - August</td>
<td>15</td>
</tr>
<tr>
<td>Meeting 5 - October</td>
<td>14</td>
</tr>
<tr>
<td>Meeting 6 - November</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 5. Engagement with the community

<table>
<thead>
<tr>
<th></th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
<th>NB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest and positive attitude toward the topics.</td>
<td>41.67</td>
<td>33.33</td>
<td>8.33</td>
<td>8.33</td>
<td>8.33</td>
</tr>
<tr>
<td>Participation in activities has been constant.</td>
<td>8.33</td>
<td>41.67</td>
<td>25.00</td>
<td>16.67</td>
<td>8.33</td>
</tr>
<tr>
<td>Sharing of experiences, histories and ways to solve problems with other members.</td>
<td>8.33</td>
<td>66.67</td>
<td>8.33</td>
<td>8.33</td>
<td>8.33</td>
</tr>
<tr>
<td>Exchanging of resources with the other members.</td>
<td>16.67</td>
<td>41.67</td>
<td>16.67</td>
<td>16.67</td>
<td>8.33</td>
</tr>
<tr>
<td>Responsibility and commitment with the learning activities.</td>
<td>16.67</td>
<td>41.67</td>
<td>25.00</td>
<td>8.33</td>
<td>8.33</td>
</tr>
</tbody>
</table>
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Table 6. Identification with the community

<table>
<thead>
<tr>
<th></th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feel part of the community</td>
<td>58.33</td>
<td>25.00</td>
<td>16.67</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>The community offers a safe and trusty space to express freely.</td>
<td>50.00</td>
<td>33.33</td>
<td>0.00</td>
<td>8.33</td>
<td>8.33</td>
</tr>
<tr>
<td>My contribution is important and valued by other members of the community.</td>
<td>58.33</td>
<td>16.67</td>
<td>8.33</td>
<td>8.33</td>
<td>8.33</td>
</tr>
<tr>
<td>Positively value shared learning with community members.</td>
<td>75.00</td>
<td>8.33</td>
<td>8.33</td>
<td>0.00</td>
<td>8.33</td>
</tr>
<tr>
<td>Belonging to the community allows to improve professional practice.</td>
<td>66.67</td>
<td>25.00</td>
<td>8.33</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

At some point, I stated that I was going to commit digital suicide because I felt a bit alone, abandoned, with a need for greater participation from you. (P8; Face-to-face meeting, November 2008)

As non-participation discouraged some academics to participate, the daily and active participation of other academics also discouraged participation. P8 was the academic with highest participation in the community. He attended all the face-to-face meetings and participated in online discussions almost on a daily basis. Furthermore, he made many contributions to the community, such as complementary readings, supporting references, and conceptual maps. This very central participation provoked conflicting feelings in some participants, as in P3’s case:

... he [P8] was involved in everything, so you wondered how he organized his time? Why can he and I cannot? Then you start to feel bad... (P3; Workshop Liberia, October 2008)

Given the geographical distance among campuses, the establishment of relationships among participants was complex. Only two of the six face-to-face meetings were “global” meetings with all participating members (the remainder
A Distributed Community of Practice to Facilitate Communication

four meetings involved one or two of the closest campuses). In this respect, the opportunity for establishing social relationships among intercampus members was greater via the website of the community. However, despite the difficulties, 83% of the participants appreciated the interaction and the shared learning with colleagues. This could be noticed in some of the answers to the question “What did we do as a community?”, where 8 out of 14 academics mentioned aspects such as sharing and support of each other; sharing new experiences; sharing ideas; and sharing practices. As an example, P3 answered:

For me was sharing with colleagues in one of the few learning processes that I have enjoyed. (P3; Workshop Liberia, October 2008)

About 92% of faculty asserted that belonging to the community allowed them to improve their professional practice. The community favored the development of expertise, which in turn was transferred to the classroom and had an effect on teaching and learning processes. Through the design, implementation, evaluation and communication of findings about their pedagogical innovations, the participants provided strong evidence of how learning in the community had impact on their professional practice.

Learning into a Community of Practice

A central conviction in communities of practice, is that learning is a social process that involves building connections: connections among what is being learned and what is important to the learner, connections among what is being learned and those situations in which it is applied, and connections among the learner and other learners with similar goals (Barab et al., 2004). The community was seen as an opportunity to learn with and from colleagues and there was a growing understanding of the acquisition of new knowledge, skills and competences. In the beginning, it was difficult to learn this new form of socialization and community involvement. We learned a lot, and there was much work, but I think the biggest challenge was to implement the innovation. Through these 30 weeks, we learned to use the platform, wiki's, blogs, forums, many theories on online and blended learning, and so on. It was a rich experience of learning where we put our learning in practice with the implementation of an innovation led by ourselves. (P11; Forum #11)

The members were engaging in opportunities to learn, share and engage in professional discussions with their colleagues. These opportunities were identified as valuable and, in some cases, as crucial for faculty who work in remote locations and who do not have many opportunities to participate in professional learning activities.

In some sub-communities, especially Liberia and Nicosia, the participants have benefited from working closer to their colleagues, they learned to work as a community, they engaged in supporting each other and in sharing experiences and experiences.

Indeed the support of the community for continuing in my process of innovation, especially from campus colleagues. We have already begun this process, and now we can offer support to colleagues who also want to start the innovation process. (P12; Nicosia videoconference, November 2008)

Literature also suggests (Cranton & King, 2003; Layne et al., 2004; Smyth, 2003) that providing faculty with opportunities to explore, discuss and reflect about their teaching conceptions and practice, enabled them to become less resistant towards different pedagogical approaches. The participants in this study were required to think and act, in some depth, about their teaching over a 10 months' timeframe. This is a much longer period than the regular professional development processes, and it is considered, as also identified by Gallant (2000), that this longer period of engagement contributed to creating continuity in their learning through an ongoing, and incremental process. Table 7 shows how participants experienced the professional development process, in terms of their learning.

The participants acknowledged the value of the community and how it impacted on their expectations about learning.

It is interesting how expectations can be dynamic. Initially, the community was seen as a comprehensive course for training in the preparation of distance learning courses ... But over time, it was clear that it [the community] was not just learning computer skills for innovation but also the acquisition of pedagogical aspects together with an interesting way of learning, where it was possible not only to learn from experts in the themes but also from colleagues with an invaluable domain expertise. Undoubtedly, a community with a shared vision generates growth in each of us of a more complex nature than when we strive to acquire knowledge individually. (P7; Forum #11)

Learning is a process that changes people. As Wenger (1998) stated, the central issue in learning is becoming a practitioner, not learning about practice. A key outcome of learning, in the context of social learning, is a way of being, of being a type of person in a specific practice context, it is a process of reconstructing identity (Warhurst, 2006). Through their participation, as they learned and negotiated meanings, the community members gradually shifted from the periphery of the practice to the establishment of an identity in the core of the community.

I believe that we, the pioneers, must assume a leadership role in our campus. The single fact of seeing us working differently has provoked colleagues to want to be part of this new way of teaching. It is necessary that we keep in touch and receive more training: “the wheel has started to turn and cannot be stopped”. (P12; Forum #11)

Being part of “something bigger” was a strong motivation for some faculty, they felt connected to others and feel that they are contributing to improve teaching practice at institutional level, as can be read in the following answers that participants gave to the question “Why is it worth for me to belong to the community?”

Status and being a privileged participant of the first virtual community. (P3; Reflection session, Workshop-October 2008)

Being part of “something big”, being part of and contributing to the institution. (P21; Reflection session, Workshop-October 2008)

Table 7. Learning in the professional development (PD) process – November 2008

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NR
Many of the participants carried out management tasks in addition to their teaching and/or research tasks. These tasks, the difficulty in articulating their diverse personal and professional activities, and other extrinsic factors such as lack of adequate technological infrastructure and lack of support from the authorities (mainly related with the time factor) contributed to hindering their professional development, as it was expressed by P8:

\[ \text{If the community is going to grow, it needs to be supported by the dean and the administration. A strong institutional support facilitates the process; people become part of the community without fear because it is an institutional project with resources, facilities and support. This creates a better environment to succeed in the community. (P8; Workshop P2, October 2008)} \]

In the same vein, it was also difficult for the participants to be open to innovation when it required more work from them. In an overloaded agenda, any changes that significantly altered the structure in terms of dedication and effort seemed to be of little importance. And this does not always happen due to lack of motivation, but for lack of conditions or personal hardship to alter the structure of priorities on which they were used to move. In this study, lack of time seemed to be the main hindrance for the faculty professional development.

I must say that my main difficulty is the time factor. In recent weeks, I had planned to enter, review and participate at least twice a week. But actually I did it once a week. I could not do it more often due to the many activities in which we are immersed. I hope to improve and get used to the idea of being more connected. Definitely, this requires more time than I thought. I am sincere when I say that I will do my best. (P1; Forum #3)

For some of the participants, the problem may be more dramatic if they are part-time staff or if they combine some lessons with other professional activities.

A ten-hour-per-week faculty is working full time elsewhere. Teaching is an extra activity and, with some exceptions, they have no extra motivation to get more involved or learning to do things differently. (P8; Forum #9)

Under this context, most of the participants in this study felt that their workload was so demanding that they could not do what they had to do in the community within reasonable time. Despite the efforts to make the professional development program more manageable, the issues of time and workload remained a problem for many participants. The research literature (Lock, 2006) and the results of this study suggest that the establishment of extra time for continuous professional development in a community of practice approach is very difficult.

The lack of access to the adequate technological resources is also another factor that affected the professional development. 96% of the participants had computers at home, but only 65% of them had Internet access at home, so they depended on institutional facilities to participate in online activities. However, while the access to technology and internet was fairly stable in some campuses, in other campuses, the participants experienced continuous problems with the access to the Internet.

At present, the biggest barrier we have is the network that is very unstable. Also, we do not have support to participate in these activities which we can count on and relieve us of pressure in the work. (P10; Puntarenas interview, March 2008)

Regarding this, the study supports the findings of Schlager et al. (2002), who determine that the instability of the technological infrastructure can become an obstacle to the faculty staff participation in online activities. In addition, it was crucial that the technological infrastructure available in the regional campuses supported the pedagogical intervention process, providing faculty and students with the resources required to experience the innovation as successful, otherwise, the results can be counterproductive, causing frustration, and as Lock (2006) states, reinforcing negative perceptions about using technology in teaching.

I am worried about the time associated with blended learning. The institution works with parameters for physical teaching, and in proposing a combination, we are investing twice as much time (face-to-face and online). It is necessary that the institution re-evaluates what it means to work in this new challenge of ICT in education. (P16; blog entry, August 2008)

According to Lock (2006) the institutional culture in which the community is embedded can act as an obstacle to community development. In this study and in spite of the participants’ motivation, the insular way in which many faculty members used to work affected the transition to a collaborative environment. It became evident that group work was difficult and, to some extent, it diminished rather than strengthened the community cohesion.

One is accustomed to doing things alone, so you do not know how to act with regards to teamwork. (P20; that April 11)

This perspective adds complexity to designing for a community, because in order to be alive, a community needs the development of relationships, active participation and productive interactions among members. In line with Preece et al. (2004), the study found that for faculty to work in a collaborative way, a redefinition of the institutional culture was needed. And, as Hunter...
A Distributed Community of Practice to Facilitate Communication

(2002) argues, for this transition to occur, it is vital that the faculty receive support and incentives from the institution.

Another consequence of this trend towards individualism is that the faculty members do not have references to compare their experiences. They rarely know what happens in the classrooms of other colleagues. The references are essential to convert abstract ideas about the quality of teaching in specific actions. To some extent, the community approach proposed by this study contributes to diminishing the problem of lack of references and examples of good practice.

In summary, the possibility of having time allotted for professional development within the faculty workload, access to adequate technological infrastructure and a culture of collaborative work are considered necessary resources for the professional development model proposed by this study. As Zahalza (2004) suggests, universities require systems combining mechanisms and conditions to enable, to attract and to put pressure on the gradual incorporation of faculty in professional development processes. The university has to remove obstacles (overloaded schedule, lack of time, lack of training offers), and has to make training attractive (recognizing it as a merit, ensuring quality, adapting it to the needs and time available).

Levels of Engagement

Another factor that was identified by the study as an obstacle for the professional development process was the levels of engagement in the learning activities. This study has found that the ways in which the faculty participated and the level of sophistication of their contribution varied considerably from one to another. The core members tended to be the ones who were fully engaged in their professional development, despite other work activities. The other participants showed difficulty maintaining a regular participation, so, in some cases they failed to become active members of the community. Those who felt less comfortable with technology also found that the time needed to resolve technical issues was disappointing, which contributed to their peripheral position in the process.

There were also differences in the responses of the members to the learning activities, especially in the discussion forums. The core and most active participants tended to write longer and more complex ideas, while less-active and peripheral members wrote shorter and simpler contributions, although there were exceptions. Although these differences were acceptable within the spirit of communities of practice, findings show that this can be problematic in the context of faculty professional development processes. The complex and extensive contributions of some members tended to create feelings of insecurity and inadequacy in some of the less active participants. This contrast in the levels of participation must be handled sensitively in order to avoid serious damage to community cohesion.

For me it was difficult to participate in the forums. Sometimes I was ready and decided to participate, but when I compared my possible contribution to P8's contribution, I felt that I did not have the same level ... so I gave up my intention to write something. (P8; Workshop Liberia, October 2008)

Although passive participation is considered legitimate (Pallot & Pratt, 2005), and to some extent, it was agreed among UNA participants that it was valid for them to interact at different levels, depending on particular circumstances, in the dynamics of building a community, the lack of participation did have some effect. In the community, continuously passive participants were viewed as non-contributors and became a source of frustration for the visibly active participants.

It is truly disheartening to visit the community and see nothing new after two or three days. I feel I am over-motivated, even annoying. (P8; Perez Zeledon Interview, March 2008)

The community as a unit needed, as also identified by (Schlager et al., 2002), active participants to add value for all members in order to support learning, engagement, and the long term sustainability of the community.

Another issue related with the levels of participation is the expected role of the facilitator in maintaining deadlines to the learning activities. Findings show that core and active participants wanted the facilitator to be tougher on maintaining deadlines, while peripheral participants valued more flexibility and tolerance. Another example of differences in patterns of participation in the professional development program was the development of nested sub-communities in three regional campuses. These sub-communities were not foreseen in the original study design, but findings showed they were a useful resource for supporting the faculty in the innovation process, in helping peripheral individuals to participate in dialogue, and in keeping some of them as participants in the community.

Faculty' Readiness

The inclusion of mixed media elements is recognized in the research literature as a recommended feature of communities of practice (Wing Lai et al., 2006). Research has argued that the combination of face-to-face meetings and online activities is one factor that leads to transformative learning. In this study, face-to-face interactions to supplement online activity were included from the outset.

Findings show that face-to-face sessions of any sort were found very valuable by the participants in building relationships as well as in working through technical issues.

I had never taken any online course. As a student I have had the same face-to-face role for more than 15 years, so the total virtuality has always been a problem for me. I like a more personalized learning; I think we all need more face-to-face opportunities. (P12; videoconference Nicoya, November 2008)

Many of the participants had a lack of confidence in the use of technology. The study addressed this gap through the initial training and ongoing support of the facilitator. However, for some faculty, the learning curve was so long and so frustrating that they gave up the community after two or three months of belonging to it.

In my case, it is not lack of motivation, but if you have noticed, I entered the website and once there, I did not know what to do? Finally, I gave up and abandoned the website without doing anything. (P15; chat, March 7)

Several authors (Eib, 2002; Killton, 2000; Lock, 2006; Salmon, 2002; Schlager et al., 2002), argue that in designing distributed communities of practice, it cannot be assumed that the faculty staff are familiar with online participation. From the quality dialogues that took place in the workshops it was evident that it was necessary to foster a culture of online communication and learning among participants. Some of them did not feel fully comfortable with online communication. The behavior of those members in the online part of the professional development program was an indicator that additional conditions were necessary before they were able to significantly interact online. As Schlager et al. (2002) asserts, in order to participate effectively in an online en-
vornment, the faculty need to be self-motivated, self-confident and to have the required technological skills.

REFLECTIONS ON THE DESIGN

In this study a design solution was proposed from a synthesis of the relevant literature. It was built on existing models and principles, and inspired by a design-based research approach to explore the design solution through a theoretical application to a specific context. This section analyzes the design solution itself from the perspective of Wenger's conceptual architecture for learning (1998).

The Design from the Perspective of the Dualities

The design in this study entailed choices along each of four dualities (Wenger, 1998), creating a space of possibilities to constitute a community-oriented learning environment for faculty staff. This space is given by the way it addresses each dimension. The following sections analyze the design from this perspective.

Duality: Participation and Reification

The educational design of the community relied on both participation and reification. The design followed new institutional policies about educational integration of ICT and the pedagogical model. As part of the design, there were a number of participant structures that allowed faculty to engage and develop a sense of belonging to the community as they participated in online discussions, readings, dialogues with experts, reflection processes, co-located meetings, group work, and pedagogical projects. In that sense, participation was expressed in a variety of forms, and the participants negotiated their identity and membership through their diverse levels of participation in those activities.

From the data it could be seen that the structures of participation chosen in the design were both an incentive and a hindrance to participation. Most participants showed a preference for face-to-face activities. They also expressed a need for more training especially on how to use the virtual learning environment. Most of the learning activities took place in the online environment where their participation was irregular. Among factors that diminished online participation were time, technical competences and the lack of a culture of online learning and communication, as well as a low bandwidth in some locations.

As has also been identified by others (Barab et al., 2004) in online communities, almost all kinds of participation in the community was at the same time a form of reification, since most of the conversations were textually mediated. But, in opposition to their findings (2004), the persistence and public nature of the communication did not seem to hinder the possibilities for communication and participation. No faculty expressed feelings of restriction due to this fact; however they did feel restricted by their competences about using the technical platform and the "highly developed interventions" of some participants.

The most important and challenging reification made by the participants was to design a pedagogical innovation. This reification was a central facility for supporting engagement, imagination and alignment. It allowed them to create alternative teaching/learning scenarios, envisioning new trajectories and, in many cases, pushing their own boundaries. The reification of the members' learning processes in an educational project seems highly satisfactory. This process required the full commitment of the participants and the integration of their own knowledge and experiences, and in that sense, as has also been identified by Ollilla and Simpson (2004), they gained more opportunities for professional development than in other less demanding activities - such as readings. The implementation of the educational innovations had an impact on the identities of the participants and their future trajectories and generally increased the knowledge of the community. The realization of these pedagogical innovations also gave meaning to the university's strategic plans and policies.

Duality: Designed and Emergent

The resulting design in this study was intentional. In the design, the "community" becomes the context for both, organizing the learning experiences and manifesting the participants' learning through an identity of participation (Wenger, 1998).

During the intervention, there was a constant interplay between the theoretical ideas and the practical requirements for designing a situation visible in the UNA context. Furthermore, the chosen method for this investigation -design-based research- supports the recursive movement between the theoretical ideas and the practical requirements. Dealing with institutional resources (mainly the facilitator's availability of time) as well as with the participants' schedules, needs, expectations and their competences (technical and cultural) to communicate through technology, drove us to refine the design and revisit our understanding of the underlying theories. So, the need to continuously adjust the initial design naturally comes from the transformation of the learning environment as it was experimented for the faculty within the institutional context.

The design provided several structures of participation, for example, online discussions and tasks supported the negotiation and reflection. The development of an educational innovation project helped them to develop new skills, to refine their practice model, to coordinate group work, to self-assess, and to be aligned with desired institutional practices. Face-to-face meetings gave a sense of belonging to a group with common interests. On the other hand, other design decisions had negative consequences, for example the early group formation impacted negatively on the community cohesion.

According to Wenger (1998), "there is an inherent uncertainty between design and its realization in practice, since practice is not the result of design but rather a response to it" (p.233). In this study, the design and its realization in practice promoted a dialogue between theory and practical problems. The design as a process and the intervention as a product raised a greater awareness and understanding about faculty professional development processes. It was also learned that the design for a particular community of practice should consider the community and institutional structures already in place and how they influence the desired outcomes of the intervention.

Duality: Local and Global

According to Sorcinelli et al. (2006), professional development must be aligned with the institutional mission and should promote institution-wide dialogues. Wenger (1998) states that a community of practice relates with the rest of the world, through creating continuities across boundaries. The design in this study encouraged the exchange of knowledge and experiences among participants at two levels: locally in the same campus and globally with faculty from other regional campuses at UNA. The exchange of knowledgeability among members that came from different local communities promoted learning not only at the individual level but also for the whole community (Ollilla & Simpson, 2004). The pedagogical innovations designed, implemented and evaluated by the participants (in diverse contexts, condition, targets group, and areas of knowledge) were a boundary object that created continuities across boundaries (Wenger, 1998), and allowed the expanding of knowledge. They also enforced UNA's policies about the use of ICT in teaching and about a pedagogical model focused in a student-centered and lifelong learning approach.

The pedagogical innovation project, in addition to having local significance to each faculty, was a boundary object around which members from...
the same regional campus, shared, discussed, and supported each other. It was also relevant in the community as a concrete example of changes that they can make in their teaching. They were able to see experiences of successful implementations, hence gaining evidence of improvements in students’ motivation and participation. These successful experiences, have been identified by Guskey (2002), as experiences that contribute to changing the participants’ attitudes and beliefs. Even for faculty who did not implement the pedagogical innovations, the experience of their colleagues acted as a mirror of what works and what is possible. The meaning of those boundary objects were negotiated while they shared their experiences, and they work as a source of imagination, giving those participants a sense of possible new trajectories, where they can make changes in practices based on new knowledge and experiences.

**Duality: Identification and Negotiability**

The initial source of participants’ identification with the community was the domain of the community itself. All faculty staff that accepted the invitation to become part of the community was eager to innovate their practice. They wanted to develop new knowledge and skills about how to integrate content, technology and pedagogy. In addition, the participants acknowledged the potential value of bringing together people from different campuses with similar goals and interests. In this respect, the community offered an opportunity to envision possible futures trajectories within the university. On the other hand, the cultivation of the distributed community of practice as part of a model for professional development was conceived by UNA-Virtual as a strategic and innovative initiative within the university. The participation in this strategic initiative (including the cross-campus collaboration) was powerful in framing the way the participants perceived themselves and the way

in which they perceived their practices and the changes they were able to make to those practices. The members were proud of belonging to the community; they considered themselves as pioneers and leaders who were contributing to changing institutional teaching practices. Olilla and Simpson (2004) state that the connection between professional development, identification and negotiability is strong. According to them, the members identify more with the community when they have more opportunities to negotiate its practice, and professional development occurs in these processes. In the case of the community, the re-negotiation of practices was an ongoing process from the beginning. However, not all participants had the same levels of participation in the renegotiation process. Poor or little participation in the online activities provoked the perception of an inability to contribute to the community, and consequently their feelings of ownership over the community’s enterprise were weak. Nevertheless, for some of them, lack of participation in online activities did not affect their motivation to change their practices. They embraced the development of the pedagogical innovation project and were successful beyond participation in other community activities.

In conclusion, the community members assumed different levels of participation, and as also identified by Barab et al. (2004), the participants closer to the center of the community were able to identify with and develop a feeling of belonging to the community to a greater extent that those with a peripheral role.

**The Design from the Perspective of Modes of Belonging**

The design of the community supported the participants’ identity formation through the three modes of belonging in various and diverse ways. Many participants came to see themselves as innovative member in relation to (1) their experiences of learning and participation in the community—many of the learning activities were delivered through online means, and (2) their own designed, developed and implemented pedagogical innovation experience in the classroom. Being part of the community also contributed to alignment with the broader institutional context, since competency with technology and student-centered approaches is claimed by the institution as a desirable condition to be promoted in the academic career.

As part of the design, we chose learning activities that would be most effective in addressing faculty learning. The approach was noteworthy because it facilitated the development of knowledge and teaching strategies, and it enabled the building of the members’ identities as innovators. In summary, the design contributed to developing identities as innovative professionals through the three modes of belonging:

1. Through engagement, as they participated in discussions, sharing, collaboration, and in projects where they were actively involved in the creation of new learning environments. The design and implementation of the pedagogical innovation project engaged them in performing innovative teaching, making meaning, and generating their own solutions to educational problems they previously identified in their classroom.

2. Through imagination, as they had contact with experts who shared with them experiences and ways to innovate teaching practices. In addition, we consistently reinforced the aspect that being innovative in teaching practice is valuable, that it can better support learning for students, and that it is a better and more satisfactory experience for them.

3. Through alignment, as the professional development process was aligned with institutional missions and values and we motivated participants to have high expectations related to their practice. Most community members felt that they were contributing to the practices of the institution and that their efforts were valued and acknowledged by the university.

However while most participants (14 out of 18 who finished the professional development process) developed expertise and new competences, others remained at the periphery after ten months, suggesting that time and readiness, among other factors are important in professional development initiatives oriented to learning in practice. It is worth noting that most members who remained in the periphery were those who did not participate in the development of the pedagogical innovation project. This confirms the importance of providing faculty with the opportunity to implement what they learned (P. A. Lawler & King, 2000), and with the opportunity to obtain evidence of improved learning outcomes of their students (Guskey, 1986, 2002).

**LESSON LEARNED**

In this study, conceptual design principles were developed from a review of relevant literature on faculty professional development, and communities of practice. The design principles, framed on Wenger’s architecture of learning (1998) were used to illuminate the design of an educational intervention in which the participant faculty staff was provided with opportunities for learning and collaboration.

According to the design-based research methodology (Design-Based Research Collective, 2003), the design principles should be tested and modified in research cycles. Depending on the nature of a learning activity, a design can be refined at the micro level—one month, one week or even one day— or at the macro level—one semester, one year or even more- (Bannan-Ritland, 2003; Cobb et al., 2003). In this case, the study took place in one macro-cycle iteration which lasts 10 month and consisted of one theory-driven design
stage and one empirical refinement stage. From this process, a set of modifications emerged as a response to the participants' feedback, participation and learning.

**Developing Social Presence**

Research has acknowledged that social presence is one variable which contributes to building a sense of community between people at a distance (Rovai, 2000, 2002). Social presence could be defined, as the feeling that others are involved in the communication process (Whitehan, 2002). Thus, in an online environment, the challenge is to facilitate the interpersonal contact with the participants.

In the community, given the geographic location of the participants, the ability to establish interpersonal contact relied heavily in electronic contact. Throughout the 10 months period, the participants expressed, in many instances, feelings of loneliness. In this regard, it is considered essential to increase social presence in the community, creating a level of comfort in which participants feel comfortable with the facilitator and other members, and consequently, as Lhe (2001) and Rovai (2000) asserted, increase the chances of participation, flow of information, availability of support, sharing of experiences, commitment to community goals, and cooperation among members.

Another challenge was related with building a culture of trust and establishing an appropriate balance of participation and contribution in a community where many of the participants did not know each other. The initial design considered diverse spaces for developing relationships between participants and in turn initiated social presence (21 meetings and online activities, such as welcome messages, personal profiles, and sharing expectations and experiences). The design also considered a weekly chat space for the facilitator to solve doubts and give support. However, from this experience, we saw the need to (1) develop relationships among the participants from the beginning in order to foster participation, and (2) use every possible space (chat, forums, blogs, wikis) to develop social presence and lessen the feeling of being alone.

**Promote Facilitator Immediacy**

According to Mandarin and others (2006), establishing a positive climate in online environments may be more challenging due to the reliance of this setting on technologically mediated interaction rather than more personal human dynamics. Faculty participating in this study were separated by geographic location, many of them did not know each other, and some of them were working in isolated conditions, thus their ability to establish interpersonal contact with the other participants was greatly diminished because most of the contact was by online means. Furthermore, for many of them connecting with others through an online environment was a new disturbing social and learning situation. And also in some locations, the connections were rather slow, which made the electronic mediation challenging and time consuming.

Findings show that a very active facilitation was required to help establishing a culture of trust and participation among members. Facilitator/instructor presence has been considered a key element in online learning (Anderson, Rourke, Garrison, & Archer, 2001) and in the building of a community (Wenger et al., 2002). In the context of this study, we understood the importance of building a sense of facilitator immediacy due to her significant role in establishing social presence for the community. Therefore, we encouraged participants to use diverse channels of communication, such as MSN, Skype, email and telephone to ease their communication with the facilitator. The use of those means for communication that are usually integrated in many faculty' daily life contributed to support what Wenger and others (2009) call an experience of togetherness and connectedness.

This was especially important for those members who expressed a feeling of isolation and detachment due to the lack of face-to-face time.

The immediacy of the facilitator, as also identified by Shea and others (2005), helped to improve faculty comfort and satisfaction with the online experience. In the community, they always stressed the central role of the facilitator in highly motivating them to participate in community activities, and it was found that personal emails from the facilitator, online messages and emails helped show accessibility. However, build a strong sense of facilitator immediacy entails time from the facilitator. The facilitator in this study was a highly motivated person but with a heavy workload. The institution allotted 10 hours per week within her workload to take the role of facilitator, but clearly this was not enough to accomplish all the tasks needed to facilitate professional development in the participants and at the same time have a strong social presence in the community.

Thus, to build a strong sense of facilitator immediacy it is suggested: (1) facilitators should have allotted enough time within their workload (at least 20 hours per week in the case of professional development communities); (2) build the sense of facilitator immediacy through availability by phone, email and other communication tools such as Skype and MSN, besides continued presence in the online environment.

**Fostering a Culture of Online Communication**

Preparing faculty to deal with the needs and demands of increasingly technologically society was established as one of the challenges of professional development programs (P. A. Lawler & King, 2003). One of these new demands are that faculty should be competent in creating learning environments supported by ICT that provide greater access and flexibility (Price et al., 2005), and in turn change their roles, responsibilities, and the mechanisms through which they carry out their work (Crawford, 2008). We believe that in order to be capable of creating learning environments mediated by technology, the faculty staff should be familiar with blended and online learning. As such, we assume that they can learn to teach with technology by first learning to learn with technology.

In this sense the design of the professional development process provided them with opportunities to use the technological tools in the way their students would be asked to use. However, many of the participants were new-comers to the practice of online communication and online learning, and as such showed limited interaction regardless of their intention to do so and regardless of initial training in the use of the technological platform. Some of them expressed they do not feel comfortable with online communication. When community members did not accomplish the learning activities and did not interact with each other in the forums or chats, they miss an opportunity to develop conceptual understanding, and as such the potential of the professional development experiences diminishes.

This suggests that the participants interact online significantly other conditions are necessary. In other words, it is not enough to train them in the use of the technological tools, rather it is necessary to foster a culture of online communication, learning and participation which can contribute to the development of quality discussion, social presence and the sense of community. However, this study also shows that developing a culture of online dialogue and learning is not an easy task. The findings suggest that, first, it is important to ensure that the expected skills of online communication are taught to the participants from the beginning, and as the intervention progresses, more emphasis should be placed on making them aware of the skills and procedures needed to ensure learning, discussion and dialogue. As technology
obstacles are overcome, the focus should be placed on fostering a culture of online communication and community building.

In short, an attitude towards online communication should be cultivated among the faculty, mainly with those participants who brought with them educational and life experiences totally foreign to an online environment.

**Fostering Local Networks**

It was found that the active participation in the online environment was low for some participants. Groups were set up during the course, but there was also insufficient interaction in them to be productive. Lack of interaction between group members online indicated the difficulty of developing social networks and accountability online, and it suggested the importance of using networks that have already been developed between the members of the same regional campus, that is, local networks.

Many community members were found to prefer to work in local groups. In general, they felt more accountable to those who were in the same campus. Thus, commitment and accountability to the group were found to be prerequisites to collaborative learning as there needed to be interaction first before the participants could contribute and make learning productive. Three of the five local networks worked very well, providing help and support in the development and implementation process of the participants' pedagogical innovations. This suggests the idea of sub-communities or nested communities (Suthers, Harada, Yukawa, & Lid, 2005; Wengler et al., 2002) - smaller sub-communities existing inside the larger community. Among the members of these sub-communities, it was more likely to find a culture of shared meanings and practices, as well as a sense of accountability to each other. This is also in line with some studies (Suthers et al., 2005) which states that small co-located sub-communities are the unit that mediates between individual learning and community learning. The differences showed by the five sub-communities regarding group support and commitment to the development of the pedagogical innovation project, are also consistent with Dubé, et al. (2006) who found that there are many different kinds of communities, and what works in one of them will not necessarily work in another.

In short, the work in the sub-communities shows that there was a relationship between close-ness, interaction and accountability. The faculty staff felt obligated to interact because there were other colleagues in their local social network that would need support. In addition, the participants were more likely to engage in critical dialogue and explore personal issues when they felt safe, respected and understood by colleagues who they already knew and who supported them.

This finding suggests two issues: (1) it is important to foster local networks and the sense of sub-communities before expanding to the larger community; and (2) if we want to foster strong relationships between faculty from different local campuses, more attention should be paid to social aspects in the face-to-face environment at the beginning of the learning experience in order to build social inter-campus networks which later support online interaction and increase social presence. This suggestion is aligned with Hara and Kling (2002), in the sense of using online communication to strengthen existing co-located communities of practices.

**FUTURE RESEARCH DIRECTIONS**

From the results of this study, it is possible to consider many aspects that require further work. One of them is the potential that appears in the sub-communities that emerged in three regional campuses. It seems that a community framework that combines a distributed global institutional community with sub-regional communities on campuses could be a productive approach to promote collaborative work and collegial support. The approach may have some advantages, since it is more likely that the authorities of the regional campuses are aware of and support the community, providing participants with the adequate time to engage in community activities. Further work needs to be done to explore this possibility and to define issues such as the kind of learning activities that should take place in the sub-communities and in the whole community in order to make professional development more effective. Also, this approach may assist with scalability and sustainability issues.

Another issue that may require further work is related with the different levels of engagement that the participants showed in this study. It is important to reflect on to what extent a professional development based on a community approach can allow members to engage in the learning activities in very different levels without diminishing the learning outcomes for the whole community, and also whether it is possible to offer different learning pathways for participants without diminishing the sense of shared community.

**FINAL REFLECTIONS**

The central postulate of this study was that a community approach offers potential as an option for effective faculty professional development. The study was an exploration of how theory plays out in practice.

The community created the social context for collegial learning and dialogue in which faculty constructed an identity in relation to a new practice. It contributes to expanding professional and personal networks, fostering a culture of sharing among faculty and reducing isolation. It also provided a safe place to make errors, to experiment, and to explore, discuss, reflect and re-conceptualize their conceptions and values about teaching practice. It offered faculty learning opportunities of doing, belonging and becoming, transforming the process of learning in a process of identity formation and not just an accumulation of skills and information.

From the findings, it can be concluded that the impact of community membership on faculty members' learning was complex. It was different for each participant depending on their levels of participation, engagement, identification and empowerment to negotiate and share the practice. However, in general, belonging to the community helped the faculty develop a sense of expertise as they participated in peer-to-peer learning. Learning and change did take place and faculty members became more knowledgeable of their practice, and gained an impact on the institutional practices.

Overall, the theory of communities of practice has been very useful to this study because it provides an understandable way to conceptualize and apply the theories of social and situated learning in a specific context. It was a valid resource to understand how learning is a participatory process that involves more than acquiring knowledge. It is an experience of doing, becoming, and belonging.

**REFERENCES**


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ADDITIONAL READING


Chapter 19
Creating a Collaborative Community in Online Environments

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ABSTRACT
This chapter examines the complexities of creating a collaborative community in online classes. A fully online Master’s of Education program is studied, with students being surveyed regarding their experiences with collaboration in the online courses. Results of the study are discussed, along with recommendations for establishing a sense of community in the online environment. Recommendations include structuring introductory activities for the instructor and students, providing opportunities for authentic collaboration and communication through tools such as blogs and wikis, and guidelines for establishing effective group projects in an online class. Suggestions for future research are also included. Overall, a case is made for the importance of creating meaningful collaborative experiences for students within the context of class content in online courses.

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