CoRe – Linking Teaching and Research by a Community-Oriented Strategy[1]

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Abstract: The aim of this paper is to introduce the concept of a "community of research" (CoRe), a knowledge network of academic staff and students organized as a community of practice. The CoRe network is being developed within the context of a community-oriented strategy for the integration of teaching and research at the Swiss Distance University of Applied Sciences. We will first present the reasons and objectives of the CoRe project, secondly describe the seven basic elements of our design of CoRe viewed as a social structure, thirdly sketch the early stages of implementation of this design, fourthly present the online collaboration platform supporting interactions among CoRe members and finally derive some of the major implications that CoRe is expected to have on the linking between teaching and research.

Introduction

The rise of people networks, both within a university and outside its boundaries, as well as the accelerating development of information and communication technologies – especially a new generation of e-learning tools integrating advanced collaborative technologies (also known as 'social software') and implementing more and more a Web 2.0 approach to online interaction (O'Reilly, 2005) are both invigorating and challenging current teaching and research activities. A major consequence of this trend will be the insight that contributing to linking teaching and research requires the adoption on both sides of the rapidly evolving forms of networked, collaborative learning and collaborative research practices.

In this broad context we have strong reasons to expect that online communities of practice (learning, research) will increasingly be recognized as an essential integrative factor also in the academic world. In the business world this is already happening since a few years. In fact a recent survey report on collaboration in enterprises shows that participation in online communities is growing, technology for online communities is continuing to improve and that retention of community participants is not a significant problem (Ambrozek & Cothrel, 2004).

Unfortunately, despite these positive signs, one major obstacle remains: the discipline of creating and managing communities is widely perceived as poorly defined. We do not know enough about how something resembling an online community of practice can be designed (Barab, Kling & Gray, 2004). Researchers even claim that enthusiasm about CoP is well beyond empirical evidence (Schwen & Hara, 2004).

This is where our concept of a "community of research" and its model of "knowledge cooperation" come into play as an attempt to convert the promise of e-learning and collaborative technologies into the reality of active, dynamic, sustainable academic communities integrating learning and research processes.

This article will first describe the new concept of "community of research" by presenting how we are applying it in the CoRe project as a means to support the integration of teaching and research at the Swiss Distance University of Applied Sciences. It will then briefly sketch our community-oriented knowledge management model called "knowledge cooperation" (Bettoni, 2005) - the theoretical background of CoRe – and finally focus on "CoRe Square", a collaborative online space implemented with standard MOODLE components for supporting CoRe.

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Rationale for the CoRe Project at FFHS

At the Swiss Distance University of Applied Sciences (FFHS) we are experimenting with the integration of teaching and research by means of the design, launch and cultivation of an online "community of research" (acronym: CoRe), a community of practice for distributed cooperation in research tasks by four types of partners divided in two groups: academic staff (research staff, part-time lecturers) and students (enrolled part-time students, alumni).

Why did we select a community of practice (CoP) approach for linking teaching and research at our university? The Swiss Distance University of Applied Sciences is organized in a radically decentralized way: first of all students learn part-time in parallel with a nearly full-time employment; secondly, learning, teaching and research happen mostly independently from location, at a distance (distance teaching); thirdly nearly all lecturers teach part-time, the majority with a very low employment rate because their primary job is in the business world. Fourthly, the small group of full-time staff has both teaching and research contracts. Finally the lecturers teach or do research from "distant workplaces" which are highly geographically distributed. This decentralized structure and highly distributed situation has for example the advantages of a strong connection to practice (all lecturers are highly engaged in professional practices) combined with higher flexibility and much lower costs than with full-time lecturers.

However, decentralized structures do not have only advantages. In particular they tend to have an insufficient level of interaction between geographically distributed persons so that weak ties become the norm in the institution. But when weak ties are the norm also the ability and willingness of people to cooperate remains below the level required. And since people tend to dislike what other people dislike, improving the situation becomes a real challenge. At our university this situation had led in the past to research activities that were too much isolated in the departments, to dispersion of human resources in smaller and less recognized research projects and finally to a weak connection between teaching and research. Our solution for meeting the challenge of providing high quality teaching and research under the mentioned conditions of weak ties consists in creating a knowledge network connecting people around the common task of stewarding research knowledge.

In organisational development both theory and practice suggest that knowledge stewarding is successful primarily in informal structures (Wenger, McDermott & Snyder, 2002; Cross & Parker, 2004). Informal structures are for example practice oriented, voluntary networks of persons ('communities of practice') which are integrated into a formal organization (a school, a university, a business organisation).

Based on the above mentioned facts & trends we had good reasons for deciding to organize our planned knowledge network in a community-oriented way and make this the foundation of our institutional strategy for linking teaching and research (Jenkins & Healey, 2005). This led to our final conception of CoRe as a knowledge network organized as a community of practice.

Community Design for CoRe

The general concept and design of CoRe is based on Etienne Wenger's social theory of learning (Wenger, 1998) and on his international online workshop "Foundations of Communities of Practice" (Wenger, 1998-2007).

Viewed as a social structure CoRe is constituted by seven basic social elements, seven interaction and cooperation areas which correspond to aspects of community life. The individual elements are: 1) Community, 2) Practice, 3) Domain, 4) Leadership, 5) Individual, 6) Connections and 7) Resource Development.

The first three of these elements – community, practice and domain - combined together constitute the necessary central framework of the structure: it is here where the main part of CoRe activities takes place and it this triad of areas that needs to be cultivated first. The next three elements – leadership, individual and connections - are important and useful extensions with a lower intensity of activities so that their development can be delayed to later stages. They build the peripheral framework of CoRe, like an interface to the outside or a membrane that regulates what enters and exits the central part of CoRe. Finally the seventh area is where members of the community interact and cooperate for supporting the structural and functional needs of CoRe by developing the resources needed by the previous six structural elements.

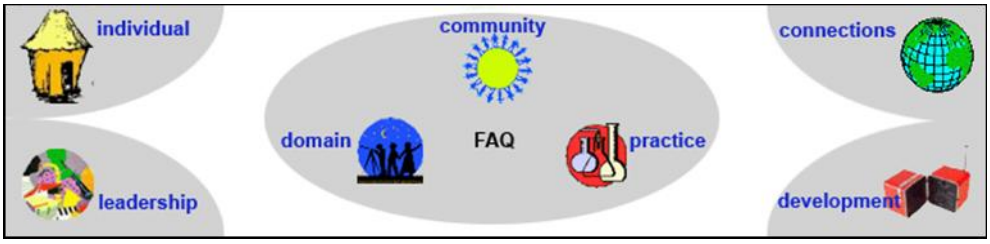

Figure 1: Structural Model of CoRe

These elements and their combination distinguish CoRe from other types of social structures; they also provide a practical model to guide community development by clarifying the definition of "community of research" in terms of a structural model and by indicating the various areas on which the development and evaluation process will have to be focused.

The central framework of CoRe

The main part of community life in CoRe is organized in three types of interactions which are also three distinct areas of cooperation for stewarding research knowledge: Community, Practice and Domain. These aspects of community life constitute the central framework of CoRe viewed as a social structure.

Community is that aspect of life in CoRe that collects interactions in which members gather to build connections as an incipient or mature community, share announcements and professional profiles and reflect on their experience as a community. The main characteristic of a Community of Research is that it is a community. Thus CoRe needs to cultivate interactions that embody this being a community, needs to support its members in exploring who is who, who knows what and how they function together. This is what the Community element is about. It is the first element of the framework that needs intensive development. It is here where community members build their first connections as CoRe members and begin to coalesce into a community. In the early stages of development the three primary activities that helped to build a solid foundation for the community element of CoRe were: a) launching the community, b) knowing who is who and c) reflecting on the case for participation.

Practice is that aspect of life in CoRe that collects interactions in which members engage in joint activities to solve problems or to build shared knowledge in their domain by telling stories, discussing their own cases and conducting projects. Accordingly in this area of CoRe members focus on three types of activities commonly used by communities: story telling, case-based problem solving, and collaborative tasks toward an outcome (projects). Stories are experiences told or recounted in the form of a happening or connected series of happenings that happened to the storyteller. Stories are central to the lives of communities of practice. They convey knowledge in a concrete form. They create a sense of belonging. And they provide recognition to the authors/actors as contributors to the community's stock of knowledge. Cases are actual problems that members face in their own work. Helping each other with actual problems is a very important community- and knowledge-building activity. It builds the community because it makes participation valuable to members in a very tangible fashion. And it builds shared knowledge because participants can share what they know in a concrete situation. Finally Projects are collaborative activities that members can initiate or join. These projects are more than exploration and discussion of research issues because they have set outcomes and end-products. Each project should have personal meaning for the member proposing it and should reflect her own research goals but it should also comply with the FFHS research strategy. In the early stages of development the three primary activities that helped to shape the practice element of CoRe were: a) projects, b) conferences and c) publications.

Domain is that aspect of life in CoRe that collects interactions in which members discuss current topics and share best practices and lessons learned from past research practice. A community of practice is brought and held together by a joint interest in a domain of knowledge, such as designing a product or carrying out a social or organisational function. This domain is a matter of personal passion to all participants and all want to pursue a joint inquiry into it. They also agree to preserve lessons learned and best practices for use in later inquiries and projects. The domain of CoRe is Research at FFHS and interactions in this area are dedicated to discussing and negotiating together research strategy, research methods, research programs etc. and preserving the results of these discussions

and the research know-how that comes from applying discussion outcomes in projects. In this area CoRe members listen, share their experience, ask questions, propose answers, contribute their insights and engage in preserving lessons learned and best practices. In the early stages of development the three primary activities that contributed to develop the domain element of CoRe were: a) research strategy, b) research programs (funding sources) and c) research methods.

The peripheral framework of CoRe

Around the central part of CoRe community life is organized in three types of interactions which in a sense, like a cell membrane, regulate what enters and exits the center: Leadership, Individual and Connections. A fourth peripheral component finally is constituted by the collection of activities devoted to supporting all the other six elements.

Leadership is that aspect of life in CoRe that collects interactions in which members sign up for and discuss about tasks related to community leadership understood as engagement for the community. This kind of internal leadership is crucial for regulating and activating the life of communities of practice: it is about people who take the initiative to engage in community-building tasks or set out to extend a community's practice. This leadership can take multiple forms, for instance: coordinating the work of building or maintaining a knowledge resource, collecting important insights and questions from various conversations, organising a public event, facilitating a conversation with visitors, hosting a guest speaker, welcoming and supporting new members, etc.

Individual is that aspect of life in CoRe that collects interactions in which members steward their individual knowledge, keep a journal, visit each other to start conversations on the side and build personal relationships. Why did we include this individual element in the CoRe structure? Firstly, because communities of practice combine two main sets of interactions and activities: public activities (like meetings and projects) and private ones (like conversations between members, interpersonal relationships, and the development of individual identities). And secondly because in our approach we focus on knowledge in its two fundamental dimensions: individual and social. Accordingly, our community life has to distinguish and organize these two important aspects: individual and public (social) life.

Connections is that aspect of life in CoRe that collects interactions in which our Community of Research interacts with visitors, hosts guest speakers and takes fieldtrips to other communities or websites. These interactions broaden up the scope of inquiry in CoRe and connect its members with a wider circle of people than the community itself. This cooperation area and its activities are important because a community can become very tightly knit and from there become overly self-centered and so lose its cutting edge. Remaining open to the world through connections with other people and other communities that deal with related domains is key to keeping in touch with the newest trends and with opportunities for development.

Resources Development, last but not least, is the seventh aspect of community life in CoRe that needs to be organized. This cooperation area is a collection of activities devoted to supporting effective research work and community building in all the other areas. It is here where the core team of CoRe meets and works for developing resources like: Yellow Pages, a Knowledge Map of the member's profiles, a tutorial for newcomers, help pages (on starting new discussions, on extending existing documents, on working with wikis, on using synchronous communication technologies), guidelines for project spaces, frequently asked questions about CoRe, etc. In the early stages of development the three primary activities that helped to build a solid foundation for the development element of CoRe were: a) building the core team, b) performing a competence analysis and c) conceiving a research incentives program.

CoRe Square: The Online-Platform of CoRe

Since CoRe, as mentioned above, is a distributed community, its members cannot rely only on face-to-face interactions or meetings for working together in research projects, stewarding their research knowledge and building relationships. For supporting and facilitating interactions among distributed CoRe members we have developed CoRe Square, an online collaboration platform on MOODLE. In this section, after introducing our technology

requirements and our approach to selecting a suitable software tool, we will shortly sketch the main elements of our implementation.

Platform Technology

Our first approach for selecting a technology for the CoRe Square platform was to start evaluating only the two open-source web platforms already in use by our lecturers: a plone-based intranet and a MOODLE e-learning platform (Williams, 2005). The reasons for this very solution-oriented, highly focused approach are summarised in the following requirements for supporting community life and development (see also Agostini, Albolino, De Paoli, Grasso et al., 2005):

- lowering the cost of participation in the system (while performing daily work)
- promoting occasions for informal knowledge exchange
- increasing the visibility of community activities and of personal contributions
- support getting started with research activities (organisational learning)

In a first experiment we built a small prototype on our faculty intranet. This intranet is used for storing university documents (general regulations, forms, regulations about examinations, etc.), for helping lecturers with administrative tasks (make students lists, search other lecturers, download examinations or course schedules, check process definitions, etc.) and for supporting them in their own professional development (announcements and material about workshops, consultation support offers, etc.).

We were just at the beginning of the prototype development when meetings with faculty representatives suggested that lecturers experienced the two platforms as two separate 'worlds': the lack of integration between the two systems (simple example: there are two different logins) was perceived as a barrier sufficient for discouraging easy navigation from one system to the other, back and forth. We interpreted this situation as a serious danger for the implementation of the mentioned requirements and decided to work on a second prototype based on the same MOODLE platform that lecturers use for teaching. First of all MOODLE would allow to have our research cooperation space easily integrated with the teaching space (same login, same tools, same conceptual background in constructivism). Since lecturers do their teaching on MOODLE, having the research space also in the same platform would support the nexus between teaching and research both for academic staff and for students: it would increase the visibility of ongoing research activities, allow members to easily commute between the teaching/learning and the research environment, offer more opportunities for planned and unplanned interactions and networking and last but not least better support learning of how to do research. Other advantages of MOODLE can be found in a more flexible user administration, better accessibility of the space and the large community of users worldwide (about 225'000 registered users until April 2007, http://moodle.org/stats/).

Platform Design

In order to contribute to the creation and cultivation of CoRe, the CoRe Square platform is designed as a "community cooperation space" for research tasks. For each aspect of community life in CoRe there is in CoRe Square a corresponding cooperation area collecting a specific set of resources that support and facilitate the activities in that area.

The central framework of CoRe is supported in CoRe Square by the following three cooperation areas:

- *Community Circle*: in this area members gather as an incipient community, share announcements, and reflect on their experience. Currently the three primary resources of the Community Circle are "Community Launch", "Yellow Tool" and "Reflection on CoRe".
- *Practice Lab*: in this area members cooperate in different kinds of problem solving activities by working on projects (from conception to delivery of results). This area is alsoconceived to support the dissemination of project results at conferences, in workshops or through publications. Accordingly, the three primary resources of the Practice Lab are: Projects, Conferences and Publications
- *Domain Club*: in this area members discuss the hot topics of "Research at FFHS", the knowledge domain of CoRe, share related best practices and collect lessons learned from past research experiences. Currently the three primary resources of the Domain Club are "Research Strategy", Research Programs (Grants)" and "Research Methods".

Around this center, CoRe's peripheral framework is supported in CoRe Square by the following three cooperation areas whose resources, in the current stage are only sketched and waiting to be fully implementd:

- *Leadership Lounge*: in this area members can sign up for tasks related to community leadership and discuss about how to organize and perform them.
- *Connections Room*: in this area members can welcome guest researchers or visitors, host guest speakers, take fieldtrips and more generally open the access to CoRe Square for non members.
- *Individual Hut*: in this area each member can initiate and organize her own personal platform space and can visit each other.

Finally the activities of "Resource development", the seventh aspect of community life in CoRe, are supported in CoRe Square by a cooperation area called "*CoRe Development Corner*". Currently the three primary resources of the Development Corner are: CoRe Team Office, Competence Analysis and Incentives System.

Duality of Tools within Activity Spaces

For designing the inner structure of the activity spaces of CoRe Square we initially began by identifying a set of requirements like making the path to useful content as obvious as possible and more generally ensuring an easy orientation, attracting users with ease of use, fostering engagement with meaningful procedures. Experience shows that particularly the first step, just after entering any activity space, should provide a familiar view and make sense quite immediately. One way to implement these objectives is to keep the inner structure of an activity space very simple (but not simpler than required) and to make it as similar as possible and useful across all the seven spaces. But how and where could we find a solution to the required simplicity and useful similarity? The answer came from our participatory knowledge management model called "Knowledge Cooperation" and defined as *"the participative cultivation of knowledge in a voluntary, informal social group"* (Bettoni, 2007a). According to this model cooperating and collaborating on research knowledge consists of two cross-coupled learning loops that activate and sustain one another: "cultivation of knowledge" and "participation in knowledge".

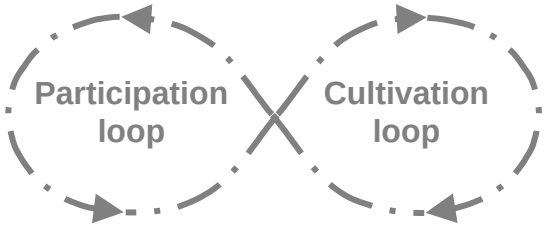

Figure 2: Circular processes of Knowledge Cooperation

The right loop, cultivation of knowledge, is the circular process by which a community stewards its knowledge resources (by processes like acquiring, developing, making transparent, sharing and preserving knowledge) and uses them in daily work. The left loop, participation in knowledge, is the circular process by which community members build social capital (establish and take care of personal relationships, develop individual and collective identities, etc.) and "invest" this social capital in stewarding the knowledge resources of their community.

These two processes are circular because in both cases the output of one process is transformed by a second process and returns to the previous one as input. In this model cultivation and participation come as a pair, a dyad: they form a unity in their duality. Accordingly we have designed also the inner structure of our activity spaces as a pair of tools that should form a unity in their duality: the dyad constituted by a forum and a wiki. The forum is a tool for conversations (sequences of verbal interactions bound to time): creating new discussion threads, reading posts and replying to them supports participation as the social experience of being connected with other and being actively involved in a collective enterprise (stewarding research knowledge). The wiki is a tool for reifications that preserve the results of conversations (new ideas, insights, best practices, lessons learned, definitions, procedures, etc.) by organizing them in a structured way and independently of time.

Implementation

For implementing in MOODLE this design our basic strategy has been to use the available standard features. We are not against customization but we are convinced that at this early stage it is better to rely on available, standard instruments and use them in a creative way rather than inventing and experimenting with new special components. The main reason for this strategy is that it allows us to concentrate our efforts on going in the right direction (be sure of "what" to implement, rather than "how"), to build the prototype on a stable basis and to spare time by having all the instruments ready to use now.

The seven cooperation spaces (areas) of CoRe Square are implemented as one single course in the MOODLE topic format. Each area is implemented in an own topic that can be accessed directly by a navigation bar placed in the upper part of the Top section of the CoRe Square home page (see Fig. 3). This navigation bar contains seven icons placed in a way that visualizes the structural model of CoRe: thus navigating in the CoRe Square space is at the same time a way to experience and understand the social structure of CoRe. Each icon in the navigation bar is linked to a specific cooperation area: clicking on the icon (or on the title below it) opens the associated area under the top section. Right of the navigation bar, a column ranging from the top to the bottom of the screen offers a set of quick links to the most used views of CoRe Square and to useful functions or lists.

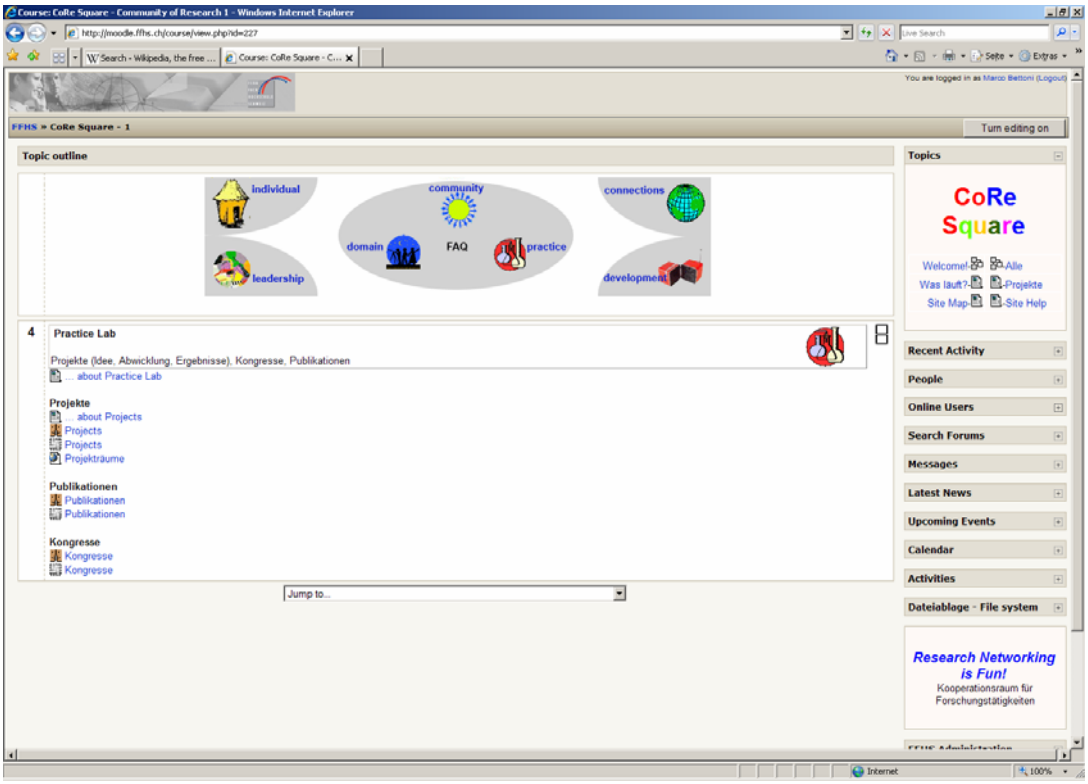

Figure 3: Practice Lab Area

As an example of an activity area the "Practice Lab" is shown in Fig. 3. Just below the title bar there is a file named "… about Practice Lab". It explains the primary activity in this area. Further explanations are given in three additional "about" files below it. This kind of documents is provided also in all the other areas: they offer guidance and step-by-step instructions for initiating a new activity or cooperating in those already running. When visiting an area for the first time, members are encouraged to review the "about" file. In the Practice Lab each project has an own forum for talking about project steps and issues and an associated wiki for a systematic overview of project work and outcomes. With many projects the topic area would become very long and difficult to navigate. For this reason we have assigned an individual project area (a MOODLE topic) to each project and collected all project names and short descriptions in a table from where a links leads to the associated project area. Below the about-file explaining the Practice Lab, this area gives access to 3 dyads: Projects, Publications and Conferences.

Process, Use and Evaluation

The CoRe project began in October 2005 as a pilot project with the objective of creating and cultivating a prototype of the CoRe network. This community pilot project will end in December 2008 and run through 4 phases:

- Phase 1: Planning = defining the project and preparing all community components
- Phase 2: Resources = community launch, resources development, informal assessment
- Phase 3: Practicing = community maturation and practice development
- Phase 4: Outcomes = resources validation, project evaluation and transfer.

In Phase 1 ("Planning" - between October 2005 and Mai 2006) we began by sketching a project definition (business case) and then worked on preparing all community components. This involved creating ideas and models of how the community might work, starting the development of a community core group, beginning to address basic cultural issues as well as preparing the organizational and technical infrastructure (the MOODLE platform "CoRe Square").

In Phase 2 ("Resources" - between June 2006 and June 2007) the CoRe network prototype started its activities with 45 members that participated in a 2 days "Future Search" conference. During this meeting we identified 4 main topics for community development in its first year: a) competence analysis, b) research strategy, c) incentives system and d) communication. Our approach for addressing these topics was to build a strong core team and have its members work - with the support of the other community members - on the development of four community resources: a competence tool (Bettoni, Bernhard, Borter & Dönnges, 2007b), a research strategy with a research plan draft, an incentives plan and an internet site about research at FFHS. After one year, in June 2007, during the "1st Annual CoRe Conference", we took an informal check on the community's health to see whether community building is on the right track. In particular we collected feedback on the following issues: how members experienced the community first year, their thinking about the work that has been done in developing the 4 resources, their understanding of the plans for the second year of CoRe and finally their wishes, expectations and positive ideas for contributing to the success of the community.

Phase 3 ("Practicing") is planned to run between July 2007 and June 2008. Based on the informal assessment completed in the phase 2, activities in this year of community maturation began with a first report on the efforts of the project up to now including an outline of recommendations. After evaluating these recommendations, their implementation will guide the second phase of community cultivation that will be focused on strengthening the community and contributing to the development of research practice by focusing on 'open cooperation', i.e. collaborating on research projects in a way that is visible to the whole community.

Finally in Phase 4 ("Outcomes" - from July to December 2008) work will address the questions of how to justify the organization's investment and what did we learn in the CoRe project. Activities will focus on the qualitative and quantitative evaluation of the two main strategic efforts of the project: improving the FFHS research achievements and developing a community-oriented strategy for integrating teaching and research.

Conclusions

A community-oriented strategy has a high potential for integrating teaching and research. In CoRe the first linkage comes already by opening membership not only to academic staff but also to students. Further CoRe has the potential to provide to students a new experience of staff research: by participating in the different activities of stewarding, socializing and applying research know-how, students can feel themselves as being much more 'inside' the research world and can participate legitimately to actual research activities although still slightly peripherally (Jenkins & Healey, 2005, p.16). Another positive effect on teaching-research connections comes from the increased visibility of the institutional policy supporting the nexus that CoRe provides to academic staff. In CoRe the traditional division of roles between teacher and students tend to disappear and the research experiences of teaching staff can be more easily, quickly and effectively integrated into the students' learning activities. Last but not least, since the CoRe Square cooperation space is only 'one click away' from the teaching space it allows members to easily commute between the learning and the research environment thus increasing the visibility of ongoing research activities and offering more opportunities for planned and unplanned interactions and networking.

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