Knowledge Cooperation in Online Communities: A Duality of Participation and Cultivation[1]

Marco C. Bettoni, Silvio Andenmatten, Ronny Mathieu
Swiss Distance University of Applied Sciences (FFHS)
Postfach, Überlandstr. 12, 3900 Brig, Switzerland
mbettoni@fernfachhochschule.ch
sandenmatten@fernfachhochschule.ch
rmathieu@fernfachhochschule.ch

Abstract: This paper is an attempt to answer the question "How to design for engagement in community-oriented knowledge management?" In order to do this we need an approach that has its primary focus on distinguishing, balancing, connecting and negotiating between knowledge in its two fundamental dimensions: individual and social. The concept of "knowledge cooperation" that we have defined as *"the participative cultivation of knowledge in a voluntary, informal social group"*, is our proposal for fulfilling the previously mentioned requirements. After introducing this definition of "knowledge cooperation" with its background in community-oriented knowledge management, we will explain and give reasons for its constitutive elements (participation, cultivation, knowledge, voluntary, informal, social) and their unique combination in our approach. On this basis we will then describe the two coupled learning loops (participation and cultivation) which in our conception characterise the dynamics of knowledge cooperation and argue for the importance of looking at participation and cultivation as an interacting duality. Our main message is that the duality of participation and cultivation that constitutes our model of knowledge cooperation allows both to better understand knowledge processes in an online community and to design active, dynamic, healthy communities where cultivating knowledge and participation in cultivating that knowledge mutually activate and sustain each other.

Keywords: online communities, community-oriented knowledge management, participation, cultivation, knowledge cooperation, communities of practice

1. Introduction

A recent survey report on collaboration in enterprises shows that participation in online communities is growing, that 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. Both experience and research show that we do not know enough about how something resembling an online community of practice (CoP) can be designed (Barab et al. 2004). Some researchers even claim that enthusiasm about CoP is well beyond empirical evidence (Schwen & Hara 2004). In fact, many communities lack sustainability: either they fall apart soon after their initial launch or they adopt a short-term, opportunity driven behavior which allows them to survive in some way. In both cases however, they are not able to generate enough energy and synergies for engaging in long-term cooperations. Moreover their short-term thinking and opportunistic behavior leads to uncertainty and mistrust between the members and consequently to low quality of shared work results.

This is where our concept of "knowledge cooperation" comes into play as an attempt to convert the promise of social networks and collaborative technologies into the reality of active, dynamic, healthy communities integrating learning and knowledge processes. This paper is an attempt to contribute to the discipline of creating and managing online communities, especially those with a focus on knowledge and research, by answering the question "How to *design for engagement* in community-oriented knowledge management?". In order to do this we need an approach that has its primary focus on distinguishing, balancing, connecting and negotiating between knowledge in its two fundamental dimensions: individual and social.

2. What is "Knowledge Cooperation"?

Knowledge is bound to human action. Knowledge cooperation – the cooperation and collaboration of different domain experts with the aim of stewarding knowledge – is a living process with both tacit and explicit elements, with both individual and social components, a process that constantly changes and

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further develops through actions and interactions. Knowledge in such processes can not be completely reduced to an object of managerial actions, but must be treated as a kind of organic entity, bound to persons, to interactions as well as to social contexts (Wenger et al. 2002; Bettoni & Schneider 2003; Bettoni et al. 2004). On this background the point of view of work psychology becomes more relevant: thanks to its focus on social dynamics the work psychological approach views knowledge management as analysis and organization of knowledge oriented cooperation (Clases, Dick & Wehner 2002, Wehner & Clases 2002). From this perspective one recognizes, that human interactions and relationships are of greatest importance for knowledge management and it appears thus more reasonable, to design the management of organizational knowledge processes by resorting to socially oriented approaches and methods, like for instance “Communities of Practice" (Wenger et al. 2002; Huysman et al. 2003).

On this basis, our proposal for fulfilling the previously mentioned requirements is a concept of “knowledge cooperation” inspired by the CoP approach and defined as *“the participative cultivation of knowledge in a voluntary, informal social group”* (Bettoni 2005). The group is informal in the sense that its members meet *within* their organization but *outside* the reporting roles connected to their position in the formal, organizational hierarchy to which they belong.

According to our model, cooperating and collaborating on knowledge consists of two cross-coupled learning loops that activate and sustain one another: “cultivation of knowledge” and “participation in knowledge” (Figure 1). Each individual learning loop is defined in its own terms and is in principle autonomous, meaning that it could function alone, independently from the other. As a result the two loops are not mutually exclusive. On the contrary, they must take place together, they are two intrinsic constituents of knowledge cooperation and only their cross-coupling, represented in the diagram by the lemniscate curve (∞ - the infinity symbol), allows to create an interacting, *resonating* duality with a sufficient activity level. In this duality what is of interest in relation to engagement in knowledge stewarding is understanding or promoting the interplay and integration of learning and knowledge processes.

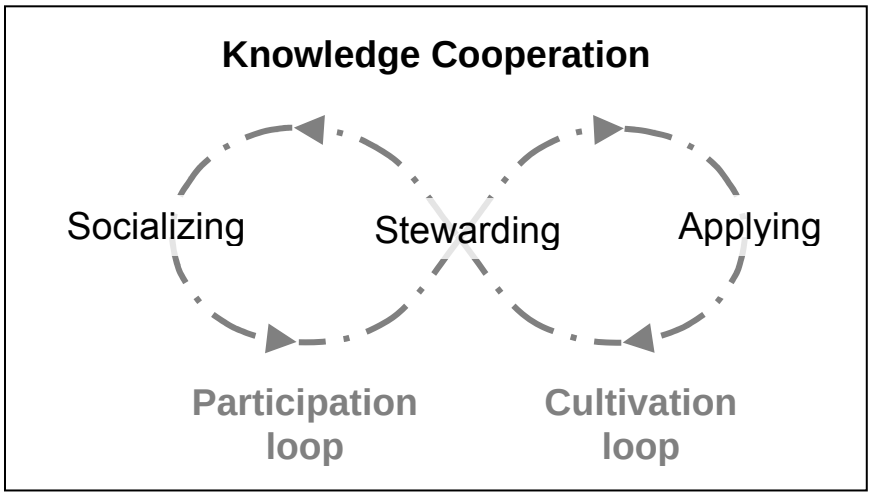

Figure 1: Circular processes of Knowledge Cooperation

The right loop in Figure 1, *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), uses them in daily work and then feeds these experiences back into the stewarding process.

The left loop in Figure 1, *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.), “invest” this social capital in stewarding the knowledge resources of their community and feed these experiences back into the socializing process.

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, a tandem: they form a unity in their duality. The three processes or groups of knowledge processes connected by means the two mentioned learning loops are (Figure 1):

a) *Stewarding knowledge* – This group of knowledge processes encompasses processes like acquiring, developing, making transparent, sharing and preserving knowledge. They are used for handing down, reproducing and renewing knowledge and experience. What should be noticed here is that these processes are not considered at a cognitive but at a coordinative-cooperative level (see the cooperation model by Wehner et al. 1998): knowledge stewarding does not intervene therefore directly in individual cognitive processes as too easily alleged by certain critics of Knowledge Management.

b) *Applying knowledge* – This group of knowledge processes collects what happens when knowledge resources are used in business processes. The learning loop of 'cultivation' is established, if employees of the formal organization (teams, departments) informally participate at the same time also in communities of practice (Wenger et al. 2002, 18 ff). This multiple membership creates a learning loop which has its focal point in the employee: she gains experiences in her daily work within business processes and can incorporate them in the community of practice, where this knowledge is stewarded collectively and prepared for flowing back to the business processes from where it originated.

c) *Socializing knowledge* – This group of knowledge processes collects what happens in personal and institutional relationships between the people involved in stewarding and applying knowledge. Relevant dimensions to be considered here are for example those which lead to effective knowledge sharing like meta-knowledge, accessibility, engagement in problem-solving and safety (Cross et al. 2003). Important elements to be considered in this group are: involved people as individual persons, their ties, their interactions (regularity, frequency and rhythm), the atmosphere, the evolution of individual and collective identities and, last but not least, spaces (physical or virtual) for meeting together. This group is very important because it allows taking into account the social aspects of stewarding knowledge, applying it and learning together.

3. Participation and Cultivation as an Interacting Duality

In our concept of Knowledge Cooperation the circularity of participation and cultivation and the interaction (cross-coupling) of these loops can be modelled more technically (Figure 2) as consisting of two feedback loops applied as *control systems* to knowledge stewarding viewed as a *performing system* whose performance (stewarded knowledge) must be maintained in line with *reference values* (organizational performance and culture) in the presence of disturbances. As in physiological or ecological systems, feedback is here the process by which the system's inputs are altered by its output (stewarded knowledge).

But which are the reasons that make this design suitable for better understanding knowledge processes and for designing healthy communities? Our basic idea in developing this model was to focus on the issue of "engagement" as a central design feature. The question is then: how to get a lasting engagement in the community? The most common approach is to look for incentives, for motivation (Bettoni et al. 2003). This may be a useful perspective in many organisational development initiatives, but in the case of knowledge we claim (and will argue for in a future paper) that the incentives view on engagement should be extended by a complementary and at least equally important consideration of the issue of "meaning".

In fact our knowledge is of course strongly related to motivation but probably much more intimately connected and directly influenced by our *experience of meaning*. More specifically our claim is that if we want to get enough engagement for stewarding knowledge in a community of practice, then we need to:

- better understand the human *experience of meaning*
- extend our community design by a *design for meaning*.

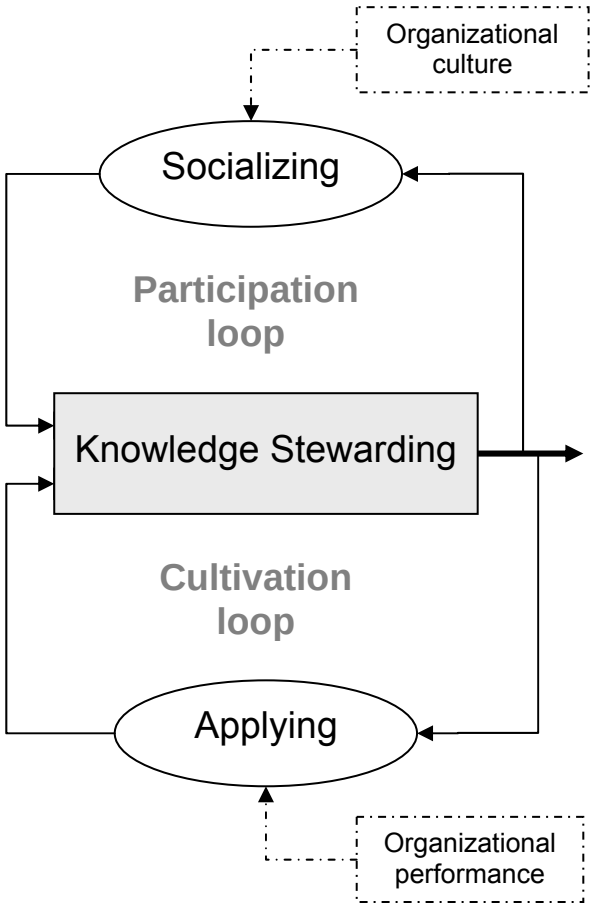

Figure 2: Feedback view of Knowledge Cooperation

A basic aspect of our engagement is that we thrive for experiencing our actions, our practice as meaningful; we do not simply want to get something done (a report written, an event organized, a request answered, etc.): what counts in what we do is always more than the result, it is the experience of meaning connected with that result. In the end the meaning we produce matters even more than the product or service we deliver.

The kind of meaning involved here is an experience of everyday life, the experience that what we did, are doing or plan to do "makes sense" to us. But how do we operate to produce these meanings and to put them in relation to the histories of meanings of which they are part? In his investigation of this issue Wenger (1998, p. 53) introduces the notion of *negotiation of meaning* as "the process by which we experience the world and our engagement in it as meaningful." This process has the following characteristics:

- an active, dynamic, historical process
- it affects the elements which shape it
- the meaning we experience is not imposed, it is produced, but not from scratch
- the meaning we experience is not pre-existing and not simply made up
- the meaning we experience does not exist as an independent entity outside the process
- the meaning we experience exists in the process (*in fieri*)

Which elements are necessary for constituting a process with these characteristics? Wenger proposes a model which distinguishes two constituent processes: 1) a process embodied in human operators, called *participation;* 2) a process embodied in an artificial operand (artefact), called *reification*. The human *operators* contribute to the negotiation of meaning by their histories of interactions in the practices of a community. The artificial *operand* contributes to the negotiation of meaning by reflecting aspects of the practice of the community (histories of transformations). Thus the negotiation of mean-

ing takes place as a convergence of two histories, that of the human operators and that of the artificial operands.

In Wenger's model p*articipation* is conceived as: a) the social experience of living in the world in terms of membership in social communities; b) active involvement in social enterprises. In the same model *reification* is seen as the process of giving form to our understandings, experiences, practice by producing objects which express them. Writing down a law, producing a tool or even even putting back a book in a shelf are examples of this process. Participation and reification are both distinct and complementary. They cannot be considered in isolation, they come as a pair. They form a unity in their duality (Wenger 1998, p. 62).

According to this model, our experience of meaning is viewed as a duality, as an interplay of participation and reification with the following implications: a) when you understand one, you should also understand the other; b) when one is given, you should wonder where the other is; c) when you enable one, you should also enable the other; d) one comes about through the other, but they cannot replace each other.

By taking seriously Wenger's theory and appreciating its potential impact on knowledge management we can now deduce the following main guideline for our *design for meaning*:

> if meaning as a constituent of a social theory of learning should be viewed as a duality of participation and reification, then engagement in stewarding knowledge should be implemented as a duality of two corresponding processes, in our case *participation in knowledge* and *cultivation of knowledge*.

To conceive and implement participation and cultivation as a duality means that they should take place together, they should both require and enable each other. There should not be any cultivation without participation and no participation without cultivation.

Participation and cultivation should imply each other. Increasing the level of cultivation should not substitute an equal amount of participation; on the contrary it should tend to require an increase of participation. Cultivation of knowledge should always rest on participation in knowledge: applying knowledge requires a history of participation as a context for its interpretation. In turn, also participation in knowledge should rest on cultivation because it always involves words, concepts and artefacts that allow it to proceed.

Finally, the processes of participation and cultivation should not be considered just as a distinction between people (human operators) and explicit knowledge (artificial operands, things) that embody them. In terms of meaning, people and things cannot be defined independently of each other. On one hand our sense of ourselves includes the objects of our practice, on the other hand what these objects are depends on the people that shape them through their experiences.

4. Participation and Cultivation: An Experiment

At the Swiss Distance University of Applied Sciences (FFHS) we are experimenting with this model of Knowledge Cooperation in the realisation of a virtual research networking space called „CoRe Square" and implemented in MOODLE (Bettoni et al. 2006). This networking space for research activities is a central issue in an ongoing project that has as its goal the integration of teaching and research by means of the design launch and cultivation of an online "community of research" (acronym: CoRe) for distributed research cooperation by 3 types of research partners: lecturers, students and research staff. In the current version the CoRe Square space is divided in the following seven areas that correspond to aspects of community life: *Individual Hut*, *Community Circle*, *Domain Club*, *Practice Lab*, *Connections Room*, *Leadership Lounge and Technology Corner*. Following the *design for meaning* guideline presented above, we have designed the inner structure of all these seven activity spaces as one or more pairs of tools, each of which should form a unity in its duality. In terms of technology each pair is a dyad constituted by a forum-tool and a wiki-tool (Figure 3).

The forum is a tool for enabling *participation in knowledge*: 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 enabling *cultivation of knowledge* that preserves 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.

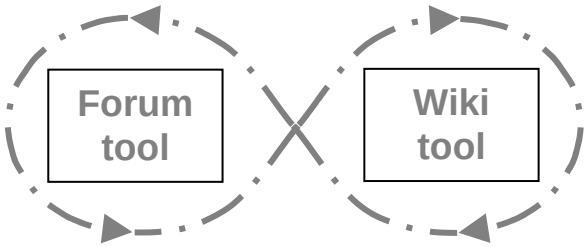

Figure 3: – Dyad tool of Knowledge Cooperation

Following this design, in the current version of CoRe Square the seven activity spaces contain for example the following dyads: a) *Individual Hut*: each member has an own forum ("personal blog") and an own wiki; b) *Community Circle*: a forum for talking about experiences with the platform and a wiki for making a systematic overview of these experiences; c) *Domain Club:* a wiki for collecting an overview of research methods and a forum for talking about individual methods; d) *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; e) *Leadership Lounge:* a wiki where members can sign up for tasks and a forum for talking about engagement for the community.

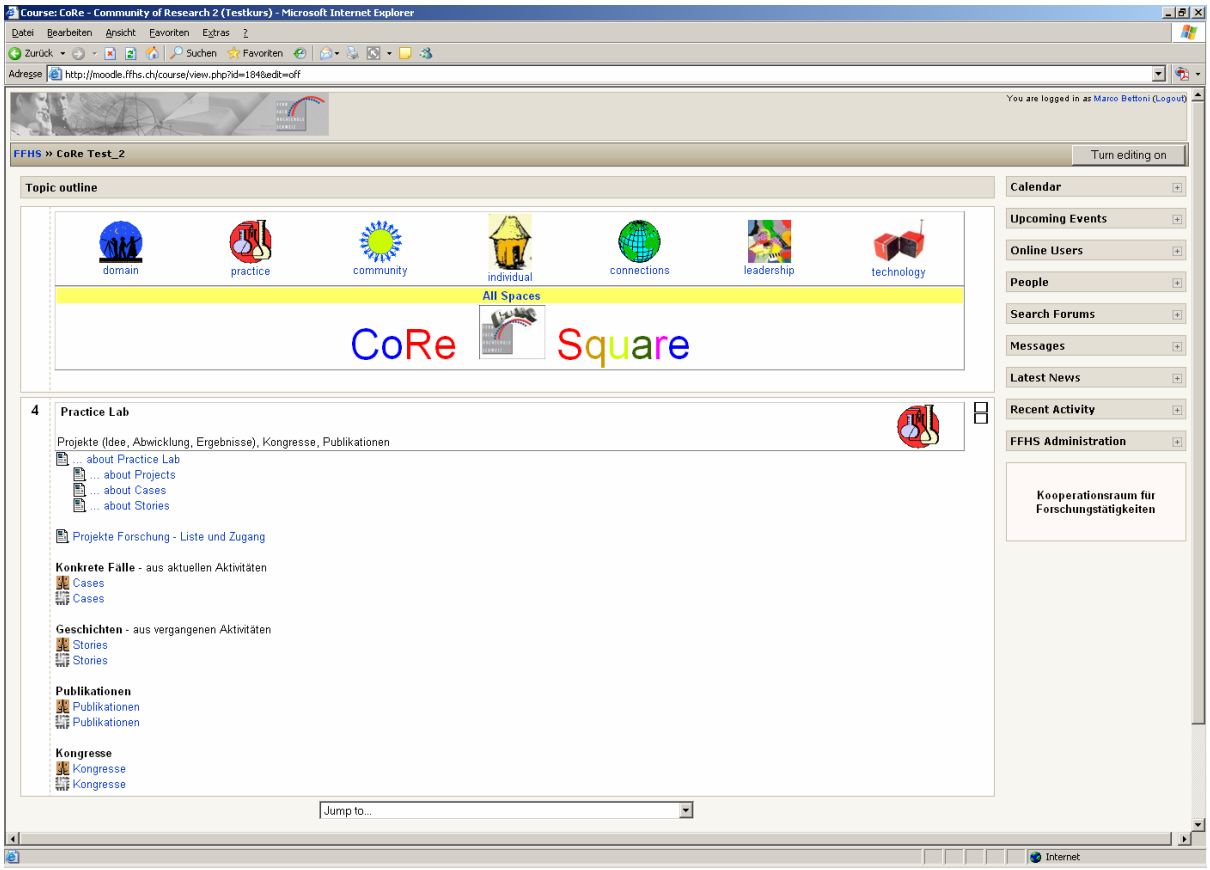

Figure 4: Practice Lab Area

As an example of an activity area the "Practice Lab" is shown in Figure 4. 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. The Practice Lab is an area for research

practice, i.e. working in research projects, writing articles and giving presentations at conferences. Each research project has an own *forum* for conversations about project steps and issues and an associated *wiki* for a systematic overview of conversation results , project work and research 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 file with the project table the Project Lab gives access to 4 dyads: Cases, Stories, Publications and Conferences.

5. Conclusion

CoRe Square will be launched during a future search event and opened to all members of CoRe (a community of about 250-300 persons) in June 2006. By then many dyads Forum&Wiki – our fundamental design unit – will be ready for use and further development by the users. At this point we plan to start an empirical investigation (formative evaluation) for assessing the suitability of Knowledge Cooperation and of our dyad tool as a way for fostering and maintaining engagement in community-oriented knowledge management.

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