SUCCESS FACTORS FOR COMMUNITY LEARNING:
A CONSTRUCTIVIST PERSPECTIVE

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ABSTRACT

Community learning in TELEs is supported by several kinds of online community interactions, for example in forums and wikis. I suggest that a radical constructivist theory of knowledge could shed new light on these *written interactions* and provide some relevant benefits to *social SRL* in a CSCL (Computer Supported Cooperative Learning) environment. After a short introduction to my radical constructivist perspective I present practical recommendations for written community interactions interpreted in the light of that perspective and conclude by linking them to demands that CSCL imposes to SRL.

INTRODUCTION

A specific strength that technology enhanced learning environments (TELEs) can offer to enable and foster community learning consists in opportunities for computer-mediated social interactions, i.e. by means of structured discussions in forums, collaborative writing in wikis, shared visualizations in mind maps or typescript conversations in chats. These computer-mediated written interactions are particularly facilitative of a social construction of individual and shared meanings because *"the nature of online interactive writing itself … supports meaning-making"* (Lapadat, 2002). Within these collaborative learning scenarios self-regulation of learning (SRL) becomes a dual phenomenon, both individual and social (Järvelä & Järvenoja, 2011) and requires from students *"the ability to strike a balance between individual and social aspects of knowledge construction"* (Delfino & Persico, 2007, p. 30). Such socially challenging learning situations lead us to consider the increasing importance of creating sustainable interactions between students - both as part of a small, distributed learning group and as members of a large online course – in order to achieve the potential of technology enhanced community learning. In these learning interactions, challenges to and demands on social SRL often come about as a result of problems related to different understandings of the concept of knowledge (and of the practice of knowing) which tacitly affect the conversational attitude of the learners. These differences may not be noticed or not taken seriously, often resulting in diminished participation or even a breakdown of interactions in the learning community. Many people will recognise that interaction problems come about from a downward spiral of misunderstandings, mistrust and lack of frankness. My experience of conventional approaches to stopping this downward spiral is that usually they are not effective. How then can students develop their social SRL skills in a way that enable them to meet the mentioned challenges and succeed in taking advantage of the new opportunities for social interactions offered by TELEs?

Given the nature of online interactive writing and its unique capacity *"to facilitate both joint social construction of meaning and individual construction of meaning"* (Lapadat, 2002), I suggest that an essential contribution to answering this question could be provided by a radical constructivist view of

knowing: by shedding new light on these interactions it could contribute to bringing about increased mutual understandings, frankness and trust in community interactions and by that promote sustainable community interactions and social SRL.

CONSTRUCTIVIST BASICS

In discussions about Radical Constructivism (von Glasersfeld, 1995), people often ask the question: "What makes this way of thinking so difficult?" Some years ago this apparently trite question followed me incessantly and for some hidden reason led me to childhood memories of an anaesthetic. Since I had experienced the anaesthetic as a short sleep, this memory produced an association with sleep. This supplied the key word for designating the difficulty that a lot of people (but in part also myself) experience with Radical Constructivism.

We sleep a sleep; it is the sleep of dogmatism. As long as somebody sleeps this dogmatic sleep - or "slumber" as Kant called it (1783) - he or she will not be able to understand Radical Constructivism thoroughly. Now, what in this context does „dogmatic" mean? It means that we do not examine the limits of our faculty of knowing, that we are not aware of such limits and so silently and without noticing it ("like sleeping") assume that we are able to know everything, that reality is fully accessible for the extending of our rational knowledge.

Distinctions of Being

Luckily Kant introduced a distinction which could help rouse us from our dogmatic slumber. It is the distinction between two forms of being. On the one hand we have the „Dinge an sich", the given (the absolute, the existence) as a form of being that is not accessible to our rational faculty (including our perception, understanding, imagination, judgement). On the other hand we have the accessible „Dinge für mich", or things as lived experiences, as that form of being in which things are accessible to our rational faculty. But the question is: why can things be rationally accessible to us only as lived experiences? The Italian philosopher Gianbattista Vico answered this question shortly before Kant. In 1710 he wrote „*Verare et facere idem esse*" (Vico, 1710). He assumed that everything that is rationally accessible to us (verare) must be rationally produced by us (facere). Kant kept spinning this thread further and proposed in his main work (Kant, 1781/1787) that

through lived experiences produced in this way we can attain objective knowledge. In the chapter „Analytics of Concepts" he developed a new concept of objectivity (Bettoni, 1997, 2000) that, in order to distinguish it from the objectivity of dogmatism could be written in this way: {objectivity}. Or „objectivity in parenthesis".

Logic of Experience

The next steps were then taken by Ernst von Glasersfeld and Humberto Maturana. Starting from Silvio Ceccato's contributions (Ceccato, 1964a,b), von Glasersfeld further developed Jean Piaget's Constructivism and elaborated the theory of knowledge that he called Radical Constructivism (von Glasersfeld, 1974). This approach suggests understanding knowledge not as „Logic of the Given", like in dogmatism, but as „Logic of Experience". In this conception the essential feature of knowledge is that it enables us to reach our goals. We aim for certain goals; we do something to get there and if we reach these goals, we then know that the knowledge we used "works" or is valuable. That is the 'viability' of knowledge. "Via" means way and "viable" is intended here as having a chance of going on that way and reaching a goal, indicating therefore something "feasible" or "practical".

Our ideas of the world which allow us to reach our goals are viable. Through them, however, we do not find out anything about the world in itself, about the logic of the given. We know only something about our experience, about our ideas; we know that they lead to success or to failure. Those ideas which lead to successful actions, which persistently contribute to achieving a relatively stable fit into our conceptual networks can be regarded then as {objective} ideas, when also the objects they involve have turned out to be viable. They are then "objective in parenthesis" i.e. {objective}, according to this new conception of objectivity inspired by Kant and Maturana (Maturana 1988, 1998).

However, how do we make these ideas? They are constructs; and interesting here is the way in which their construction is organized as organic and not as mechanical constructive procedures or courses of events (operational sequences). Knowledge emerges in an organism or in a living system, and the essence of a living system is fundamentally different from the essence of a machine. The essence of a living system (organism) is autopoïesis, or in other words "self

generation". Instead, the essence of a machine is limited to "self motion". Kant gives a famous exposition of this (Kant, 1790, B292-3): *"In a watch ... one part is certainly present for the sake of another, but it does not owe its presence to the agency of that other ... For a machine has solely motive power, whereas an organized being possesses inherent formative power."*

In the same way in which a living system – like cells, a cell system, a living body - forms and develops itself, in line with Piaget (1967) I see a formative, organic principle at work also in the generation of knowledge. That is at least my approach; I try to understand knowing and knowledge in this way, with constructive procedures or operational sequences organized according to an underlying organic principle. Knowledge in the head is organized in an organic, dynamic way, and this is how we build our logic of experience by means of autopoïetic procedures.

Maturana, who developed the concept of autopoïesis, says: *"The product of the functioning of the components is the same functioning organisation that produced them."* (Maturana, 1980, p.9). Therefore knowledge results from cognitive processes in the dynamic form of a functional organization which extends or modifies the existing functional organization and has itself the faculty of producing knowledge. So the intellectual capacity grows in a dynamic way. That is an important point: the dynamics of knowledge could be thought of in this way through an autopoïetic model of knowledge organization.

How determines What

Based on the previously presented view of knowledge as "Logic of Experience" I attempt to concentrate the foundation of Radical Constructivism in one single sentence, the first axiom, and say: "How determines What", or more precisely, my own How determines What. This What is here reality, as we see it and/or the given as all that we consider as being given: both were determined through my How (and have become my reality, my given). Accordingly this What are the things here. However, only according to my lived experience - not according to things in themselves - and the How consists in the operations of this lived experience (Bettoni, 1999) in the autopoïetic knowledge system that is alive.

In the dogmatic conception of knowledge, that is, if one does not make this distinction between the (inaccessible) things in themselves and the things as lived experiences - unconsciously or because one does not want to do that distinction - then the What is the same for all. Of course the What of each individual is also determined by the How. However, taking a dogmatic view means that all must agree on one and only one What, and the What is identical for everybody and absolutely real and true in itself.

In the conventional approach to science the student or researcher then is a person who finds out what this unique What actually is. He is therefore a discoverer. On the contrary, in Radical Constructivism the What is always dependent on a person who produces it through her specific How. In this case the student or researcher is an inventor. Another person can produce the same What (the same invention), provided that she performs an equal How. Therefore in Radical Constructivism one can only agree on a shared What, when and only when participants can negotiate a certain What that is recognized as reasonable for attaining certain common goals. But one can never say that a What is absolutely valid. In fact, the absolute What, the logic of reality, is not accessible ("operational closure") and the shared What is in fact a distributed collection of many more or less different Whats, one for each person.

SUCCESS FACTORS

To begin with, it seems important to clear up which *criteria of success* we want to define for community interactions. In this case I will base my considerations on a distinction that Schulz von Thun (2000, p.15) draws. He distinguishes between humanity and effectiveness and suggests that to be successful, conversations should balance and take equally seriously these two aspects. Effectiveness, that is purpose, planning, evaluation, and so forth - everything that one emphasizes and expects today when one speaks of work or assignments - should be compensated by a commitment to humanity, for the promotion of sustainable human factors including respect, appreciation, frankness, solidarity and self-realization.

The question is then: How do we establish such community interactions in which humanity and effectiveness are balanced and taken equally seriously? If we agree on this striving for equilibrium between humanity and effectiveness, how can we

realize it and how can Radical Constructivism contribute something to that? In the following I have summarized the contribution of Radical Constructivism in the form of recommendations, which can be derived from the basics presented in the previous sections. What further inspired me in this case were also some practical reflections on foundations of constructivist theory that Sonja Radatz (2008, p.32-55) has developed for her approach of a Systemic-Constructivist Coaching:

1. Negotiating how things really are leads to an illusory, ephemeral agreement.
2. We cannot know how people really are, only how we experience them.
3. To negotiate a What I must talk about my How.
4. Even if we experience (live a situation) objectively, we are always part of our experiences: {objectivity} in parenthesis.
5. Shared meanings (or models) require acknowledgment and appreciation of individual meanings.
6. Shared meanings require participation in a cooperative, creative process.
7. Behind a statement do not forget the substance of the tacit knowledge it refers to.

1. Negotiating how things really are leads to an illusory, ephemeral agreement

In a community a sustainable (not illusory) agreement on meanings is something to which one strives again and again. But if one strives for an agreement over a particular subject, one should always consider that the agreement can never be about how things "really" are in themselves. There can in fact never be an agreement over the "true nature" of what is; that would be illusory and hence not sustainable. And if we do not give up this illusion, then any agreement situation (a shared meaning) will be like that of a person who sees water in the desert and walks in its direction in order to refresh himself. Only after coming closer will he see that his perception was a mirage and that the water can not be reached so that he cannot quench his thirst. That is the problem with illusion: we can attempt indeed to base our negotiations and final agreements on how things really are, but it will be difficult to reach sustainable results.

What I know does not describe things as they are in themselves; it only describes things as I experience them, in my life, as I construct them mentally (see the "I message" by Thomas Gordon, 2001). Reality is objective only for me, individually, and it is then the system of my validated - therefore not random - ideas, the system of the ideas that were successful in my lived experience. We cannot therefore rely on a reality which should be identical for all of us, we can only take seriously many {objective} realities. In a community many realities are indeed always simultaneously available. For every individual community member it is always a question of objectivity in parenthesis, as Maturana (1988) writes. Now, if an agreement is sought in this community, it should be considered that it cannot be about how things are in themselves. Rather, what should be sought is an agreement about how the individual objective realities of the community members could be collectively incorporated and could provide a collective experience of meaningfulness. We have here to do with a process of negotiation of meaning. But from a constructivist point of view there can be no single shared meaning (Cobb, 2000), only the process can be shared. I can therefore never assume or expect that all community members see the things in the same way as I see them. If I have the illusion that there could be a single meaning for all, then in my community interactions I will experience many disappointments and frustrations.

2. We cannot know how persons are, only how we experience them

This is the transfer of the first recommendation to the level of interpersonal relationships. Imagine a conflict situation in the learning community: statements like "That student is a traitor" or "That teacher is cowardly" do not make any sense in a constructivist approach. The problem is this little word "is". To be cowardly or to be a traitor are absolute statements claiming validity for all situations and for all times and therefore referring to properties of things (here: persons) in themselves.

However, as previously seen, these properties are something that in Radical Constructivism are considered inaccessible. At most I could say "I experience that teacher as cowardly", explicitly bringing myself into that consideration in the form of an I-message. I could also say, „I experience his behaviour as cowardly", which probably fits even better. However, I cannot say "his behaviour is cowardly" because that would again represent a true-nature-statement, this time about the behaviour.

3. To negotiate a What I must talk about my How

This thought is based on the idea that in cognition the What is constituted by the How (constitutive operations, see section 2). When I talk over what I know, I use expressions of the discourse of my community (shared reifications). However, with those expressions I connect some very specific meanings, my own, particular meaning. What is particular? The particularity lies in my activity, in my operations by which I produce my meanings. As a consequence, in order to successfully negotiate our meanings we must walk behind the descriptions, behind the words, and behind the described thing (the What). From there we rise to the mental operations that constitute the What, up to the How (the source). Our focus should be directed towards which operations we, or the current speaker, use to build a specific meaning of the What we are speaking about. We therefore need to distinguish between How and What. That is the first step. The second step consists then in trying, as far as possible, to advance, to ascend in the direction of the How, in order to consider our own operations. If we see something, *how* did we look at? If we hear something, *how* did we listen? When we use a concept, *how* did we think it? As Elsie Spittle (2005) writes: *"Being aware of experience on an external level is helpful, but being aware of how we create experience is the true gift."*.

4. Even if we experience (live a situation) objectively, we are always part of our experiences: {objectivity} in parenthesis

Radical Constructivism does not need to consider everything as subjective. We can build our ideas as {objective} ideas if we validate them through action, knowing that we keep on being still involved also in these validated results. In other words we can in no way "subtract" ourselves from our own results. In the perspective of an objectivity in parenthesis we can keep on using the term and the word "objective", but I would suggest that we always put it between parenthesis if we want to think and to write in a radical constructivist way. {Objective} means the I-message: *„I am part of this objectivity that I'm offering now"*. This {objectivity} never means that what is said is absolutely valid for everyone. By making an idea become {objective} we do not achieve a statement or a knowledge that is absolutely valid. We may achieve a timeless knowledge, but even that we can never prove, because we do not have any grip - at least rationally - on reality. We may have

a mystic access, but that would be a completely different topic.

5. Shared meanings (or models) require acknowledgment and appreciation of individual meanings.

Negotiated or shared meanings are very important in community interactions: there is a need to agree on meanings and to use also common models. However, these negotiated meanings presuppose recognition, appreciation and acceptance. Why? The reason is that they are built up from individual meanings; these are basically all meaningful, i.e. make sense, in the experiential field of the individual who developed them through her participation, reification and other processes and has become their owner.

I found this assumption of meaningfulness (and the request for recognition it implies) very useful in the development of knowledge-based systems (Bettoni & Fuhrer, 2001). In that context I worked with domain experts that owned the know-how that I, in my role as knowledge engineer, was supposed to incorporate in a computer application. In computer science in such cases the classic approach for producing a knowledge model consists in having the information scientist focusing either on the computer and its features or on formal logic and its axioms. However, this constitutes a difficult obstacle which, since it mostly remains unconscious and unnoticed, hinders the development of the knowledge model. In this way many projects fail and many potential projects are not launched all. In my role as knowledge engineer I attempted to reverse the priorities and to put first the recognition, acceptance and esteem for the individual knowledge of the domain experts. Only when this basis was first formed, I looked then at what had to be changed in the knowledge model if the computer-constraints and formal logic were considered. My motto here was "Logic of Experience first!". In projects with this approach both participation in the development of a common knowledge model is important as well as the respect for the inner, intimate union of the knower with her knowledge as a primary constituent of her identity.

6. Shared meanings require participation in a cooperative, creative process

For reaching shared meanings (and/or models), special attention should be dedicated to the process of 'negotiation of meaning' (Wenger, 1998). In this

process one should make sure that individual meanings receive the recognition, acceptance and esteem that they deserve. I, as a community member, do not assume that there is an absolutely valid knowledge and do not judge the individual meanings of other members against that. Rather, I try to understand how these individual meanings make sense in the experience of the person who brings them forward. It may be that together we then find certain logical mistakes on the level of the operations - of the How - and can even just correct them.

The main job when negotiating meanings or models, however, consists in performing the negotiation first at the level of the operations - of the How - so that afterwards also the related meanings – the What – will be easily and fairly negotiated. In that way creativity also gets a greater chance because in shared meanings there is always something new, an original part that we build up from scratch together with others - and what we need to do that is creativity. But one can much better disclose this creativity when one does the step from the What up to the How – or when the new is sought on the level of the operations. Edward de Bono, one of the best known creativity experts (de Bono, 1967), wrote extensively about this. His statements about how one can support creativity are compatible with Constructivism, although he never claimed to be a constructivist.

7. Behind a statement don't forget the substance of the tacit knowledge it refers to.

This point is particularly important when managing the community's knowledge. If we assume that our knowledge is organized in an autopoïetic way, then we become suddenly aware, that in such a context designations (reifications) are only static instruments that can catch only a small part of the dynamics of knowledge - *"the word dies away already in the feather"* as Faust said (Goethe 1817, verse 1724).

Hence in my approach I consider explicitly designated knowledge merely as a shadow of the dynamic knowledge in our head. In order to emphasize this important distinction between two kinds of knowledge, one speaks in knowledge management of explicit (the shadow) and tacit (the body) knowledge. Explicit knowledge is what one expresses, what is written down, stored on compact discs, held in the library, condensed in instructions, or embodied in infrastructures and facilities: a machine factory which has facilities like for example a

production plant, has also explicit knowledge in form of different machines placed in a certain spatial order. Tacit knowledge on the other hand is knowledge in the head of the human being. If we make statements or interpret statements, we should always consider then behind a statement there is always this dynamic, tacit knowledge which contains much more than only what is expressed in the statement about it.

This can well be illustrated by the shadow of a body. The body contains much more structure and dynamics than the shadow does. The same happens for the relationship between tacit and explicit knowledge. We know therefore much more than what we express and make explicit. This is why we should always draw a distinction between these two kinds of knowledge and in learning community conversations consider that the explicit statement of a community member is always only the shadow of what she or he is thinking or feeling.

APPLICATIONS

How would a typical teacher using TELEs and community learning approaches apply these suggestions to improve interactions among learners? How would they be shared with learners in a way that they could not only understand, but apply them in order to improve the quality of their interactions? This contribution is theoretical, yet, since many readers would obviously ask these kinds of questions, I will try to give some application hints and concrete examples. First of all one should aim at creating opportunities for social-dialogical processes. This is in line with Paulo Freire, who stresses the importance of dialogue and dialogical actions as an instrument of liberation in adult education (Freire, 2007). Secondly one may find these dialogue opportunities in many learning scenarios suitable for TELEs. A collection of these scenarios with activities, tasks, strategies and tools as well as pedagogical advices, examples and links can be found in the "Resources" pages of eduhub.ch, a platform for new learning technologies at Swiss universities (eduhub, 2011). Finally, in order to devise suitable dialogic activities that can be smoothly introduced into these scenarios, one should try to look at scenario's activities with an appreciating attitude towards alternative viewpoints; the activities must then be redesigned with the aim of helping the students to let alternative viewpoints emerge, then share, cultivate and appreciate them as equally legitimate. Take for example the scenario "Collect Student Exam Questions" (eduhub, 2011), which

aims at motivating students to review a theme or a complete course; "alternative viewpoints" in this case would require different questions and their related justifications and answers on the same issue or aspect of the theme, all developed by students. Two ways to let "alternative viewpoints" emerge that we experienced in an online course were asking the students to "devise the most challenging question" and "to contribute suitable pictures for visualizing the questions"; in both cases, with the support of a forum discussion, we facilitated the related social-dialogical process of construction and reflection.

CONCLUSION

In this paper I have argued that within collaborative learning scenarios computer-mediated written interactions can become a challenging learning situation with high demands in terms of social SRL skills as a result of problems related to different understandings of the concept of knowledge and the practice of knowing which tacitly affect the conversational attitude of the learners and can lead to diminished participation or even a breakdown of interactions in the learning community.

For supporting students in developing the needed social SRL skills, I have proposed seven practical recommendations for online interactive writing based on a radical constructivist view of knowledge and knowing. They are intended to facilitate joint social construction and negotiation of shared meanings by bringing about increased mutual understandings, frankness and trust in community interactions. Our hypothesis and hope is that this would contribute to the development of social SRL skills imposed by CSCL environments (Lapadat, 2002; Delfino & Persico, 2007 p. 30; Bergamin et al., 2011) like, for example:

- easily bringing into the conversation the needed higher order thinking,
- efficiently expressing one's thoughts by literate writing,
- becoming more effective in making meaningful contributions,
- activating a deeper commitment to participate,
- feeling more comfortable with taking the risk entailed in expressing one's perspectives
- actively contributing to the formation of a pleasant social climate,
- openly negotiating decisions and agreements
- and last but not least providing helpful feedback and support to other community members.

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