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Co-Dynamics in Engendering Innovations through Collaborative Leadership – A Complexity-Based Approach

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ABSTRACT

The paper presents ten co-dynamics that are supposed to be those underlying forces and powers that bring about an innovation creation process. The co-dynamics as unpredictable movements have been found by a Grounded Theory approach from two large-scale data. Parts of the other data serve here as the empirical source. In order to comprehend the nature of the co-dynamic, the notion of collaborative leadership is exploited. It includes both human participants and tangible elements, such as activities, practices, measures, or tools when synergy is gained. Collaborative leadership is supposed to be, at the same time, both the very source and the result of the dynamical movements.

KEYWORDS

Dynamics, Collaboration, Leadership, Synergy, Complex Systems

INTRODUCTION

Essential questions in innovation creation are evidently those that concern what characterize successful innovation creation processes and what might problematize them. However, some other important aspects have remained slightly aside. The research that would focus on those invisible but strong ***dynamical forces and powers*** that actually *bring about the innovations and impact their co-creation* is still too rare. The reason for this scarcity is not that the significance of dynamics has been denied. An increasing amount of research already exists, for instance, in the sphere of organizational and business studies (Goldstein, Hazy & Lichtenstein 2010; Hazy, Goldstein & Uhl-Bien & Marion 2008). The real reason for the scarcity might lie in the difficulty to empirically investigate the ambiguous dynamics and then relate the study to a coherent theoretical framework.

Thus, in spite of the growing number of research, there is still a great need for deeper understanding of the underneath dynamic processes that generate innovations.

To be able to theoretically and empirically investigate these forces and powers that are here called *co-dynamics*, this paper will be based on two interwoven concepts of *collaborative leadership* and *complexity*. Complexity science provides a fresh theoretical paradigm to capture and uncover the origin and emergence of co-dynamics. Collaborative leadership then affords a practical tool in terms of a model to investigate crucial elements within the dynamical processes. Here this scrutiny will be done in relation to a long-term curriculum reform process (Altrichter 2005). Consequently, this paper aims at answering to the following two questions: What are those dynamics like that engender the innovation creation? How these dynamics might be related to the co-creation process?

THEORETICAL BACKGROUND

The dynamic and complex system of collaborative leadership

To begin, 'leadership' is not here understood in its traditional sense. However, *lead*ership can be still considered as an appropriate term for studying co-dynamics. This is due to that collaborative leadership involves the conception of *lead*ing. According to Collins English Dictionary (online), *leading* does not only mean to direct, go at the head, or have the top position. To *lead* also means to show the way by going with; to guide or be guided; to cause to act, feel, think, or behave in a certain way; induce; influence; to serve as the means of reaching; to direct the course or conduct; to initiate the action; or to tend to or result in.

Due to these highly collaboration-related meanings, I settled on to use the concept of collaborative leadership referring to the kinds of processes where a group of people together 'lead' their shared actions towards shared goals. But this seemed not yet to be enough to understand co-dynamics. Therefore, I will argue that collaborative leadership is a *dynamical system*. It means that collaborative leadership is not only about individuals, such as leaders or followers although they are naturally involved in the system (Ladkin 2009). Collaborative leadership as a dynamic system involves *all the elements within collaboration*, such as roles, duties, tasks, behaviours, instruments, technical and psychological tools, practices, measures, activities, results, or situations in specific contexts (Bass 2008; Katz & Kahn 1978). Ultimately, collaborative leadership refers to a continuous and conscious learning process (Fenwick 2012) where diverse individuals,

leaders included, share common endeavours and are engaged in a goal-oriented action in creating synergetic something novel from the existing constituents (Bandura 1997; Hutchins 1995; Surowiecki 2004). The novel that arises is then more than the sum of its parts; it is the root of innovation. Consequently, the dynamics are intentionally endowed with the prefix of co- in order to emphasize the *co*llective nature of the process. Thus, although the individuals naturally serve as the dynamical source of an innovation, the actual locus is on the collective and synergetic creation process where the entity is more than the sum of its parts. Co-dynamics that generate innovations are seen to arise from the entire community: from its communication, activities, thoughts, emotions, and attitudes.

In order to modify a coherent theoretical framework for understanding co-dynamics, I consider collaborative leadership as a *complex adaptive system* (CAS) (e.g. Anderson 1999; Hazy et al. 2007; Stacey 1995). Although the roots of the CAS research are in natural sciences, this kind of approach is strongly gaining ground in social sciences, for instance, in business and management, and in education, i.e., in leadership and school politics (Davis & Sumara 2006; Fenwick 2012; Morrison 2002). The CAS research focuses on such non-linear dynamic systems that are complex, living, open, and fluid. The continuously changing and evolving systems consist of independent elements that highly influence both each other and the entity they form. In this way, something new and unexpected will emerge. Due to the elements' unpredictable movements, the evolution of the system cannot be predicted because they are self-organising in responding to their environment. I consider *co-dynamics as those underlying forces and powers that generate the unpredictable movements*.

What are then the independent elements of collaborative leadership? In my previous studies, I have created, piloted, and statistically and empirically tested a model called TenKeys® that includes, so far, ten attributes with explanatory nuances that describe collaborative leadership as a CAS: *polyphony, interaction, expertise, flexibility, commitment, responsibility, decision-making, negotiation, confidence-based control* and *evaluati*on. The design and development of the model has taken several years, including progressive, both theory- and data driven qualitative and quantitative analyses. The attributes have been identified on the basis of two main sources. First, I have drawn on a comprehensive array of [leadership] theories and studies from different scholars (e.g. Goldstein et al. 2010; Hazy, et al. 2007; Gronn 2008; Harris 2009; MacBeath 2005; Uhl-Bien & Marion 2008). The second source consists of my research results from three Finnish nation-wide studies and from one long-term international

case study. These have featured several successful elements for collaborative leadership (Jäppinen & Ciussi in preparation). Because of the limited writing space, I will not include here any detailed description or the clarification of the elements. For an interested reader, they are available in other sources (Jäppinen, 2012; Jäppinen & Maunonen-Eskelinen 2012). Nevertheless, I will exploit the attributes in opening up the results.

Moreover, my idea of the evolving collaborative leadership is closely connected to the 'duality of structure' suggested by Giddens (1984). It means that the structural properties of social systems, such as attributes of collaborative leadership, are both the source and the outcome for the innovations they are recursively producing. Thus, their interactions describe leadership as a process and a collaborative design. In brief, the attributes serve as the fuel for co-dynamics that bring about new innovations, which in turn will serve as a source to generate new ones. In this way, the attributes provide a solid framework to empirically study the co-dynamics and their effects. Some existing research provides additional support to my theoretical considerations. For example, Klein, Sayma, Faratin and Bar-Yam (2003) outline dynamics of collaborative design. They explain how the design, such as an innovation, emerges through the interaction of many participants when they work on different elements of the design. In this respect, their study differs from mine when they see the interactive elements as individuals while in my approach the elements refer to all the constituents within a collaborative action. In addition, Klein and others (*ibid.*) see the collaborative design as a process, counting communication and interaction as prerequisites for understanding the dynamics of collaborative design.

METHODOLOGY AND DATA

I have formulated the co-dynamics by the Grounded Theory (GT) approach with an extended and long-term data in two culturally different case studies where innovation creation was in process. The results introduced in this paper concern only one of these case studies. The GT approach helps understand the basics of a phenomenon and modify a theory or a model based on a categorical analysis of empirical data. With GT, variables called categories and their interrelationships are discovered. I did not employ the classic 'glaserian' method (Glaser 2012), but used an applied approach, which gives more freedom (Borgatti 2012). However, the process included the typical phases of GT (Glaser & Strauss 1967; Strauss & Corbin, 1998). The phenomenon that I focused on concerned *dynamical human*

interaction ***movements*** *that seemed to have* ***power to bring about something new or variable to happen***.

Open coding is the first phase in conceptualizing the data by identifying, naming, categorizing, and describing the phenomena observed. When a thing is detected, a conceptual term will be given to describe it on a more general level. When same kinds of things later arise from the data, they will be coded to the same category. My open categories included the movements. The second phase in GT is dimensional positioning. There, concepts belonging to the same category are placed onto the same dimension in terms of their properties. The dimensions were used in precise the nature of the dynamics. The third phase is axial coding, where the connections between the concepts and categories of the previous phases are distinguished and defined by inductive and deductive reasoning. In this phase I generated the names for the dynamics. The final phase is selective coding, where the core-category of Co-dynamics was named and related to the other categories. Although these phases are presented in a certain order, in real life they are overlapping in the mind of the researcher. Thus far, I have discovered ten co-dynamics from the empirical data and named them as *Empowerment, Continuum, Resilience, Crossing, Polarity, Partnering, Reversal, Collision, Unification,* and *Passing*. The co-dynamics will be shortly introduced in Findings. (Jäppinen, in preparation.)

Because communication is considered as a prerequisite for understanding the dynamics of collaborative design (Klein et al. 2003), I used the qualitative concept analysis (Creswell & Plano-Clark 2007) when studying a multiphase curriculum reform process in a business school. The data of this paper consisted of five in-depth, tape-recorded, and transcripted interviewees of the participants in terms of free-floating discussions when thematically following the attributes of collaborative leadership. As Fenwick (2012, p. 157-158) emphasizes, a socio-material perspective should be included when using a complexity based approach. My TenKeys® model provides this kind of perspective when it includes both humans and various tangible elements, such as activities, practices, measures, or tools.

FINDINGS

The co-dynamics' discovering process in terms of GT analysis is still going on. Most probably, the future data will uncover several new ones. Due to the limiting writing space, I am able to give only a short glimpse of the richness and variety of those co-dynamics that were found in the data. I will first describe the co-dynamic and give then some examples that

characterize the co-dynamics' effects on the innovation creation process, particularly, when they indicate its criticality. In this way, the examples provide understanding of how the co-dynamics both exploit and generate collaborative leadership in a business school's curriculum reform. After the quotations, I have placed the letters CL meaning 'collaborative leadership' and the particular attribute (in bold), along with some of its nuances.

Empowerment is a co-dynamic that exhorts to find a common ground on which ground to act. It cyclically connects the process and products. Consequently, it encompasses to create strong roots linking 'you' and 'me' as 'we'. When using empowerment, the community is strengthened by adding agency and ownership so that the members would feel to be real partakers in something important and crucial.

> "There is a chance to implement it but *we didn't maybe have as much impact as we would like to have had*. But it's not dead. There is still time to put all in place" CL as **Polyphony**: participation, power distribution

> "Sometimes we agreed, sometimes we didn't but *it was never to the extent that people would not speak because they were inhibited*" CL as **Interaction**: dialogue, conflict resolution

> "*Nobody felt* that they had an *idea that was crushed by somebody else* because even if you only had an idea, maybe *somebody else would feed of that*" CL as **Expertise**: shared cognition, shared creativity

> "*The nice way* is to say that the *directors recognized that it has a talented pool of people and if they give them a free rein, they will come up with some really interesting ideas* which may be a bit crazy but which will serve in the future to make something really innovative and change things. *The cynical picture* is that the *directors have this group of professors who will not just shut up, who will not really take the line*. And who will always need to feel that they are being useful and they need to feel they are creative but they are bloody nuisance actually. So, 'What do we do? We'll, give them a thing to do, something really fun: invent a new pedagogical model. You never know, something might come out of it. They'll probably think of something that we can later shape the way we want'" CL as **Flexibility**: freedom, assertive elasticity

> "It depends on some *willingness from top management but you need some acknowledgment*" "I have understood that *top management is confident enough, some but not all*" "It was nothing like in certain meetings where you've got some director or somebody with power running a meeting and everybody is supposed to contribute and you can *actually see 'the rockets' and people saying things very politely but you can feel it*" **Confidence-based control**: power

With the co-dynamic of ***Continuum***, the learning community is able to consolidate the past, present and future into a coherent whole. Continuum combines 'now' and 'then' in a supportable and understandable way and

seeks to convey the best from the past to the future so that the community would not end up to chaos. Continuum extends the community's time horizon and involves an idea of a right rhythm to advance in a given situation and in a convenient rate as well as reasons for how to proceed. Ultimately, Continuum is about the survival of the community.

> "The group was made up of people *who didn't maybe have the experience* but they *knew something was wrong* and they had the *wish to advance*" "All the people were involved who were *interested in moving forward in some way*" CL as **Polyphony**: participation, consultation

> "I think *expertise* means anybody who is *prepared to look at the way they do* something and say '*This is not exactly what we want. How could we change it*?' It's a step on the way" CL as **Expertise**: discerning relevant issues

> "I think the *only way is a unique way of doing it*" "I'm a bit *frustrated because we have not yet implemented it*" CL as **Commitment**: promotion of actions

> "If you are a really backward-looking management, *if you think that you can ignore the rest of the world and just continue doing things the way they are, you might as well pack up*" CL as **Evaluation**: indicators of success

The co-dynamic of ***Resilience*** means that the organization is able to actively and in an elastic way resist turbulence coming both from inside and outside of the community. It helps keeping up courage under a pressure and standing firm in difficult situations. Resilience builds up the organizational culture, skills, and architecture when yielding to the realities of life. It also adds fortitude, endurance, patience, perseverance, self-control, and persistence.

> "It's not because they don't care about pedagogy. It's just because there have *so much pressure on them to write papers*. So, even if some of them have been at discussions at times, *almost none of them could be involved in the process*" CL as **Interaction**: dialogue, systematic and continuous interplay, conflict resolution

> "*Sometimes it was tough* because of the *discipline differences*, because of what we think is an innovation" CL as **Expertise**: shared cognition

> "We had to make a proposal but we also *knew that whatever we propose is likely to have to be modified again*" CL as **Flexibility**: assertive elasticity

> "The *most difficult is the budget*. *Time as well*" CL as **Commitment**: collective values and principles

> In fact, you need to *find the right balance* because if you have *too much heterogeneity,* then it's *difficult to find any consensus*. Or just to create consensus which is not a good way also to find innovation. So, you need to *have enough but not too much*" CL as **Decision-making**: productive solutions

The co-dynamic of ***Crossing*** takes simultaneously use of width, length, height, and depth. It helps to overcome the existing boundaries at different

levels of concepts, relations, and actions. It offers the community wings to fly, that is, abilities to rise above the conventional and cross not only visible boundaries but also the more hidden ones as regards concepts and relations on the various borders of authority, task, policy, and identity. Crossing particularly requires time. Hence, it also needs good preparations.

> "Everybody who wanted to be involved was heard. The *only voice that was not heard was the people that didn't want to come* because, actually, they don't know what innovation is" CL as **Polyphony**: participation

> "Communication is something that most of the business-business professors don't really think of. They think of communication as 'how can I advertise my businesses'. They don't think of *communication as 'how can I talk to someone so that they understand me'*" CL as **Interaction**: dialogue, meaning making

> "We worked with a small group, a *community with an individual angle*. You had an idea, you talked about it to the whole group and *people would chip in and we all discussed*. And the *barriers went down*" CL as **Negotiation**: valuing others' emotions, making compromises

> With the *merger*, there was a *real need of having a single program* which would not be a mix of what was done in the two schools before. And one and a half year ago, when the fusion started, it was *what happened: It was just a mixture of the two old programs*!" CL as **Evaluation**: indicators of success

The co-dynamic of ***Polarity*** assists the community to move towards diverging directions but from the same kind of starting point. It includes practical harmony between vertical and horizontal, thus, it discerns and joins at the same time. Polarity means that the community has a common premise but aims at developing issues to differing courses. These polar movements are strongly based on common ideas, thoughts, intents, and attitudes, and realized through various activities. It gives in tandem both circumspection and courage through excitement and enthusiasm.

> "It was a *hard process but very motivating at the same time, exciting and exhausting*. It was as if I were pregnant, really the same process. You have a feeling of personal satisfaction because we have done it until the end" CL as **Polyphony**: participation, consultation

> "Their expertise comes from the fact that *they know that the way they have been doing it is not really right*. It doesn't work. I think anybody who is prepared to look at the way they do something and say "This is not exactly what we want. *How could we change it*?" and then *think of different ways*" CL as **Expertise**: discerning relevant issues

> "*Doesn't matter if it's crazy, let's try*" CL as **Commitment**: promotion of actions

The co-dynamic of ***Partnering*** is about starting something from different premises but proceeding in parallel to the same direction as corresponding

actions, while keeping yet the same pace. Partnering includes power to and with; either the power is given voluntarily to somebody else or it is collectively governed. Partnering also has an ethical and moral dimension when a preference to one another is given. It is about agreement, commitment and likeminded movements, yet respecting existing differences. Partnering makes people very sensitive to each other. It includes an ability to go on with the others and requires confidence and fellowship as a joint venture.

> "There were maybe some points about *what's really innovation*, about what we can do and what we cannot do in the classroom. Sometimes we had to discuss a bit in order to *make sure we were really in the same direction*" CL as **Interaction**: dialogue, meaning making, critical questions

> "Sometimes it was a bit more *difficult to have this common understanding* on the issues" CL as **Negotiation**: combining of different interests

> "I think something and you think something and *we are going to work it out*" CL as **Confidence-based control**: strength

Reversal enables the community to change its direction in an open-minded and conscious way. It involves either avoiding something supposedly destructive or striving for something considered desirable. Reversal includes the meaning of change agency because it allows the community to find a totally new direction to be proceeded.

> "We have tried, for example, to *make teachers more* than like a coacher, than a teacher; a *different relationship between student and teacher*" CL as **Interaction**: interplay, consolidation of different opinions

> "To change what we are doing, to change behaviour and to change some knowledge. We had this *awareness of the big change*" CL as **Expertise**: shared cognition, common reflections

> "Then you are *conscious of what you have done and you change your own practice*. It's already ten teachers for which it is different. So, it's already starting" CL as **Evaluation**: focusing on one's own actions

The co-dynamic of ***Collision*** is influencing when some things or people are on a collision course as regards different opinions or actions. Collision means trying, testing, or redefining something that is considered important. It involves power over, that is, the power is taken, not given. When manifested, Collision usually indicates a gap somewhere in the community.

> "For some aspect, we had freedom enough. But at the same time I had the feeling of *being in two different worlds*, some discrepancy between the world of the project and the real world. How it will be possible once to *build a bridge between the both worlds*? And at the same time, I had some formal meetings where it was

said that now 'courses, classes...'" CL as **Flexibility**: persistence, freedom, making compromises

"The program directors *don't have the same vision as the top director* because they are more operational" CL as **Commitment**: collective vision"

"The students want quality. Afterwards they *might propose something but it is mostly critique* than proposition" CL as **Evaluation**: indicators of success

The co-dynamic of ***Unification*** means coming from opposite directions towards points where many alternative ways disperse to various directions but finally meet and find each other at certain critical places. Actually, it signifies harmony building in diversity.

"We had *people from different disciplines*. There was a *lot of heterogeneity*. There is maybe *not enough in some areas*" "*Different people added different things*. Different people come at this thing from different angles because of by the *nature of the job they do*. They will *come at it from different degrees*" CL as **Expertise**: multi-professional knowledge

"But *I don't think we left anything along the road*" CL as **Responsibility**: high moral standards

The co-dynamic of ***Passing*** includes the process of observation as a looker-on, bystander, escapee, or even sponger. It can also mean missing an opportunity either voluntary or accidentally, or to purposefully 'come on board of a moving train' or evasion. Passing involves the general idea either of avoiding or reaching something.

"Some professors *just have an idea*. They *try it and don't read the literature* concerning the research *if somebody has already tried* that and what are the good things to do and the bad things and *how to avoid the problems*. Because maybe one million people have already tried that in the classroom and you could avoid it" CL as **Expertise**: mediation of multi-professional knowledge

"And actually, when you see what happened *in the first meeting we had with the directors afterwards* when the program was presented, that's *exactly what it was*. They all said, '*Very nice, very good, but this won't work. We can't do that*" CL as **Flexibility**: durability, confessing reality

"Because *we knew that all we were coming up with was a proposal*, and because we also *knew that in all likelihood they would turn around* and say 'Oh we can't do, very nice but we can't do it' I don't think we were that bothered" CL as **Decision-making**: productive solutions

CONCLUSIONS

This paper examined those processes where innovations are intentionally co-created by a group of professionals in changing and highly demanding

situations. For this, the notion of collaborative leadership for synergy creation was introduced. The study perspective of co-dynamics in generating and exploiting collaborative leadership might provide a new and fresh research perspective when collaborative leadership is understood as a complex adaptive system including both the human and material perspectives. The approach of co-dynamics has several application possibilities and could be benefitted by single organizations in providing valuable information about their inner dynamical movements. For example, if all the statements of the participants were included here, then we could have been able to make interpretations of those dynamics that seemed to particularly modify the complex adaptive system of collaborative leadership in the particular community as to its curriculum reform as an innovation.

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