SYSTEMIC INTERVENTION WITH COMMUNITIES OF PRACTICE (COP): A CONCEPTUAL FRAMEWORK

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ABSTRACT

Systemic intervention focuses on both methodological pluralism and boundary critique which makes explicit the need to explore issues and people included, excluded, or marginalised in the systemic analysis. This research perspective also concerns about the agent identities. Within a systemic intervention there is a need to surface different interpretations of agent identities. Although some attempts to analyse agent identities have been proposed, there is still a need to generate analytical frameworks about identity within a systemic intervention, taking into account the social learning process of those agents involved in the intervention. This paper thus presents a conceptual framework that includes the social aspects of learning, in particular the Communities of Practice - CoP analytical framework - within a systemic intervention approach. In doing so, the paper aims to enrich the systemic intervention perspective considering the CoP perspective about participants' identities and the constitutive elements of social learning. The CoP view of identity is that formed by the negotiation of experience, community membership, learning trajectory, the nexus of multimembership, the process of participation between and within communities, and the acknowledgement that non-participation can take many forms and these forms also define identity. Hence, the CoP analytical framework is proposed to help with the boundary and issue reflections regarding agent identities. This could be seen as a synergy for systemic interventions. To describe this synergy first, the paper presents the bases of the systemic intervention framework and previous proposals about managing identity issues. Then, it presents the conceptual framework of CoP. Finally, there is an explanation of how to work with this framework, and some reflections about this proposal.

Keywords: Critical Systems Thinking, Systemic Intervention, Methodological Design, Boundary Critique, Methodological Pluralism; Agents' identities, Communities of Practice

INTRODUCTION

Systemic intervention is a critical systems thinking (CST) approach that aims to work with stakeholders in exploring the issues that they consider relevant and to then generate creatively designed methods to deal with those issues (Midgley, 2000; Foote et al., 2007). In doing so, systemic intervention focuses on reflecting on boundary judgments about who and what is, or ought to be, included, excluded or marginalised in the systemic analysis (Churchman, 1970; Ulrich, 1983; Midgley, 2000). It also involves methodological pluralism: the design of methods, drawing upon resources from across the spectrum of paradigms, to approach multiple questions regarding the problem to be analysed (Midgley, 1997, 2000). This approach grants analytical primacy to the boundary

concept, and views knowledge of agents and the world as secondary. Therefore, Midgley (2011) suggests that:

"we should theorize about the nature of the agent (and agency) in exactly way that we theorize about the world, exploring different possible boundaries for understanding agency, and making a contextually meaningful decision on what perspective(s) on agent(s) and agency are going to be most useful."

There are two important aspects to highlight regarding the analytical framework proposed by systemic intervention. Firstly, although the use of boundary critique to explore the inclusion, exclusion, and marginalisation of different issues has been studied broadly over the past decades (i.e. Churchman, 1970; Ulrich, 1983; Midgley, 2000; Yolles, 2001; Córdoba, 2002; Córdoba and Midgley, 2006), the nature of the agent, the exploration of possible boundaries for understanding agent identity, needs more research attention. In fact, values, ethics, aesthetics, emotions, and passions are all crucial dimensions to the process of judgment about what constitutes improvement, as are facts, figures and concepts (Bawden, 2003). Therefore, systemic intervention needs an analytical framework proposal for studying agent identities.

Several proposals have emerged to study agent identities (i.e. Gregory and Romm, 1999; Vega-Romero, 2001; Taket & White, 2000; Midgley and Ochoa-Arias, 2001; Córdoba, 2002; Córdoba and Midgley, 2006; Midgley et al., 2007). These proposals have taken into account different aspects of agent identity such as personal attributes; roles; historic, heterogeneous and strategic forms of identity; and diversity in interests and perspectives; among others. These attempts have helped in the reflection of the nature of the agent within systemic intervention. However, more efforts to generate learning about agent identities are needed.

Systemic intervention is not only about boundary critique, but also about learning from that process through critical reflection on both process and outcome (Bawden, 2003). This learning includes a dynamic, two-way relationship between people and the social systems in which they participate in a particular context (in time and space) and therefore, the social aspects of this learning process might be taken into account while approaching a systemic intervention.

Considering the need to generate an analytical framework for approaching agent identities on the one hand, and taking advantage of the social aspects of learning processes immersed in systemic intervention on the other hand, this paper presents a conceptual framework that includes social aspects of learning (in particular a Communities of Practice perspective of learning) for systemic intervention, in its exploration and analysis of agent identities. In doing so, the paper aims to enrich the systemic intervention approach from a social learning perspective.

This paper is organised as follows. The first section presents the main aspects of the CST research approach, the systemic intervention bases and some discussions about identity within CST field. The second section presents the main aspects of the CoP framework, especially regarding identity and constitutive elements of social learning. We conclude by

presenting the methodological reflections about the use of CoP conceptual framework within the frame of Systemic Intervention and discussing the implications of this approach for CST and CoP research.

CST AND SYSTEMIC INTERVENTION

Critical Systems Thinking (CST) is a research approach to systems practice that was first developed in the 1980s. CST has centred its debate and contributions on three themes: critical awareness, improvement, and methodological pluralism (Flood and Jackson, 1991; Midgley, 1996; Flood and Romm, 1996; Jackson, 2000; Midgley, 2000). According to Midgley (1996) these themes can be defined:

- Critical awareness: examining and re-examining taken-for-granted assumptions, along with the conditions that give rise to them.

- Improvement: ensuring that research is focused on "improvement", defined temporarily and locally, taking issues of power (with may affect the definition) into account.

- Methodological pluralism: using a variety of research methods in a theoretically coherent manner, becoming aware of their strengths and weaknesses, to address a corresponding variety of issues.

Critical Systems Thinking and its three themes have been approached from different perspectives. In the following we will focus on a description of one of those approaches: "systemic intervention". In doing so, we will also explain how this approach focuses its attention on agent identities as well as on problematic situations.

Systemic Intervention Framework

Systemic intervention (SI) is a critical systems thinking research perspective proposed by Midgley (1997, 2000). Midgley defines systemic intervention as purposeful action by an agent to create change in relation to reflection on boundaries. This definition involves, in general terms, a cycle composed of:

- Critique – about exploring different possible boundary judgements and choosing between them.

- Judgement – here, the idea is to judge which theories and methods might be most appropriate. Creative design of methods is used. Consequently, the idea of this "creative design of methods" is to understand the problem situation in terms of a series of systemically interrelated research questions, each of which might need to be addressed using a different method, or part of a method. An alternative way to look at this approach is to think in terms of "multi-layered" intervention, where methods must be responsive to different "levels" of analysis (Boyd et al., 2007). Furthermore, creative design of methods allows mixing methods from different paradigms to address these research questions. The set of questions may evolve as events unfold and an understanding of the situation develops. The method(s) that emerge from this perspective is different from the sum of its parts, so a synthesis is needed that allows

each individual research question to be addressed as part of a whole system of questions, the result is a synergic use of the method (Midgley, 2000).

- Action – the implementation of methods to create improvement (Midgley, 1997; 2000).

This approach is based on the idea of making boundary judgments. In doing so, Midgley based his proposal on the ideas of Churchman (1970) and Ulrich (1983) about boundary critique. This refers to the process of exploring who and what is or should be included or excluded (Midgley, 2000). In addition to the categories of inclusion and exclusion, Midgley (2000) proposed the analysis of marginalisation. To Midgley, the notion of marginalisation is important. There are situations where particular stakeholders and issues are marginalised (neither fully included nor excluded from the system) and subject to strong labelling and ritual treatment (Córdoba, 2009). Regarding this issue Foote et al., (2007) say: "Midgley (2000) talks about marginalised people and issues being made 'sacred' and 'profane' to indicate the potency of the valuing or devaluing that they are subject to" (p. 647). Figures 1 and 2 present the models of marginalisation and conflict proposed by Midgley and Yolles (2001).

The basic idea of boundary critique is thus to reflect on different possible boundaries in order to challenge taken-for-granted assumptions regarding issues, values relating to judgement on these issues, and people (including the identities and roles of agents such as researchers and participants) included in, marginalised by, or excluded from a social design. Reflection on the problem situation or social design should be considered in terms of what is and ought to be, and how the "ought to" might be realized (Midgley & Ochoa-Arias, 2001).

According to Midgley and Ochoa-Arias (2001), the systemic intervention cycle of critique – judgement – action consists of two sides as the main parts of the analysis: agents and process. The general view of the cycle is detailed as follows: (See Figure 3):

- *Processes side*: We can begin with the identification of problematic phenomena. Here, we can find some contrasting interpretations of the problematic phenomena by using boundary critique.

- After initial reflection on two or more contrasting interpretations, it is possible to move to a choice between them before cycling back into reflection. The methods for the chosen interpretation are described here. Choices have to be justified in dialogue with others.

- So far, learning about the interpretation may occur, resulting in changes to that interpretation: new interpretations, a switch to another interpretation, a conclusion to the intervention (the phenomenon has ceased or a new phenomenon has been substituted for the previous one).

- *Agent side*: During the process of identification of problematic phenomena and their interpretations, the role and identity of the agents also appear as problematic. Therefore, interpretations regarding roles and identities have to be discussed.

- After some initial reflection (as for the "process side"), a choice between interpretations can be made. This can lead to transformation of the role or identity of the agents. Justifications of the choices made must be provided.

- The process of questioning roles and identities also help to identify problematic phenomena so, the main cycle can be closed.
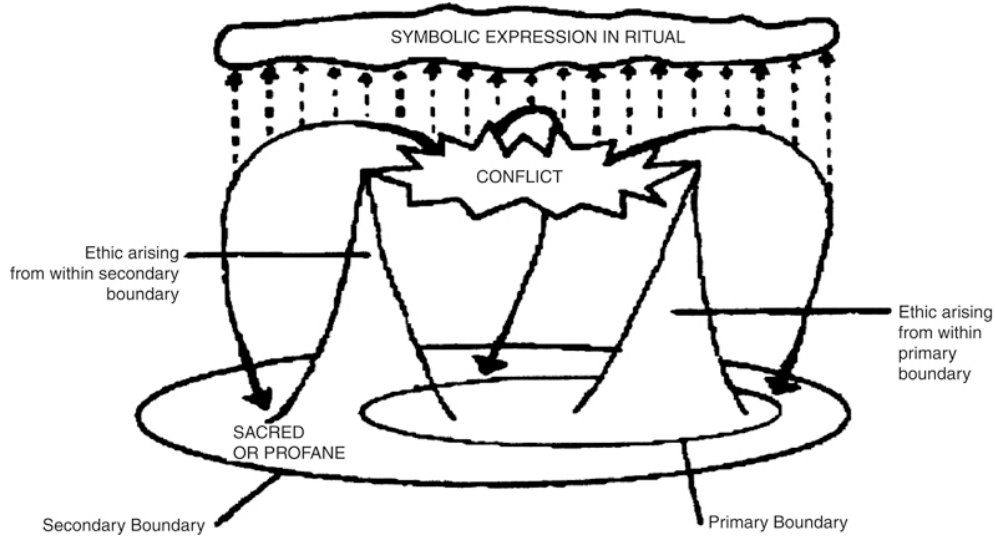

Figure 1: Margins, ethics, sacredness, profanity and ritual (from Midgley, 2000, p. 144).
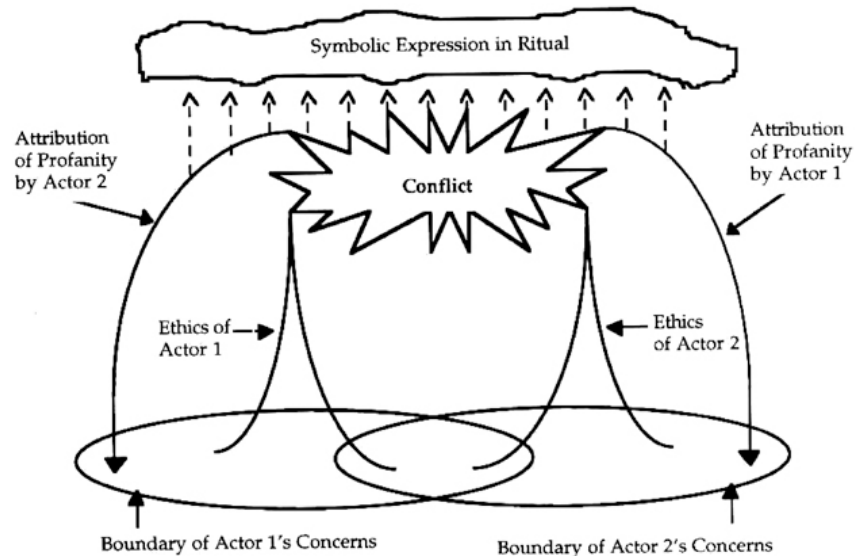

Figure 2: Model of overlapping stakeholder concerns, with attribution of profanity (from Midgley, 2000, p. 154).

In this cycle, concerns regarding agent identities are explored. Systemic intervention therefore not only focuses its attention on process, but also on the need for the agents to reveal different interpretations of their identities, with the corresponding "identities that ought to be developed or adopted; and the means that could be used to make those changes" (Midgley and Ochoa-Arias, 2001; Midgley et al., 2007).
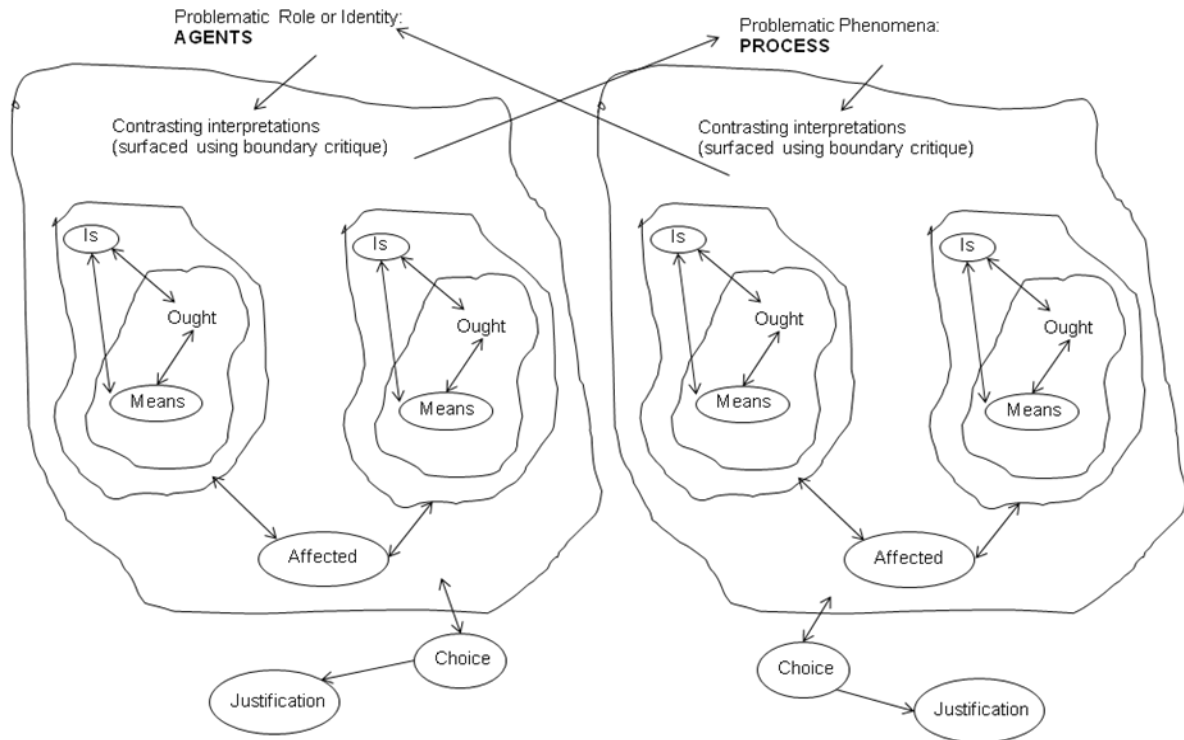

Figure 3: Systemic Intervention for CSCL-MPS process (adapted from Midgley & Ochoa-Arias, 2001)

Identity Issues in CST

CST authors such as Gregory (1996), Gregory and Romm (1999), Taket and White (2000), Vega-Romero (2001), Midgley and Ochoa-Arias (2001), Córdoba (2002); Córdoba and Midgley (2006), Midgley et al., (2007) have all discussed the importance of critical self-reflection and the identity of the self.

Gregory (1996) based their appreciation about identity in four interrelated dimensions of critical systems practice:

- Experiment and observation

- Two way communication with other

- Self reflection – one's own assumptions

- Ideology critique – assumptions at the society level

Dynamic relations between the "self" and the "society" also present the state of understanding in reflection (self or society level) so as to maintain or transform the other. Gregory, in collaboration with Romm (Gregory and Romm, 1999), also presented the need to consider the state of understanding in reflection, where experts play a pivotal role by involving participants in open dialogue to negotiate their differences and reconsider their initial conceptions (Vega-Romero, 2001).

Conversely, Taket and White (2000) pay attention to the role of interventionists with an emphasis on the ethical responsibility of facilitators and on different roles that they have at different times or with different people during the intervention. Here, the idea of the facilitator is that of a person with multiple experiences, different interests and diverse natures.

Another interesting view of identity is proposed by Córdoba (2002) and Córdoba and Midgley (2006). They present the idea of the CST facilitator as being an 'ethical subject' where, based on Foucault's views of power and ethics, they propose the need for critical action and self-construction of a subject in relation to the effects of power.

Vega-Romero (2001) proposes a process of identification in the dynamic of subject and power-knowledge formation (following Foucault's ideas). He points out three methodological elements to identify that dynamic. First, unfolding in reverse – identification of the problem with a plurality of worldviews. Second, folding – the identification and promotion of the subjectivity by a situated, historical, and strategic reflection about knowledge formations. Third, ethical and political unfolding – a process of ethical dialogue, negotiation, ethical decision-making or open struggle with others about changing regarding the situation). This approach of identifying the dynamic of subject-power-knowledge formation is proposed as a way to take into account the situated, historical, heterogeneous, and strategic form of subjectivity.

Midgley and Ochoa-Arias (2001) propose a methodological framework for inquiry into both problematic phenomena and practitioner identity (as shown in the previous section). Following those guidelines, Midgley et al., (2007) present an understanding of practitioner identity in terms of boundaries, and propose a series of management strategies to address issues related to identities.

All of those previous proposals to address the problematic nature of agent identities have been useful in the field of critical systems practice. However, based on the systemic intervention principle of generating learning about the process and the outcomes of the situation intervened, taking into account the fact that knowledge is contextual (temporal and locally) and circumscribed to particular communities (Midgley, 2011), identity issues can be analysed from a social perspective of learning. In doing so, the methodology can be enriched from other research perspectives that focus its attention on the interactive aspect of negotiating meaning (Harwood, 2012). For instance, Communities of Practice proposed by Wenger (1998, 2010a), where identity is seen as an interplay between the

modulation of identification and the modulation of accountability, is a perspective that fits with that purpose. This perspective will be explained in the next section.

A SOCIAL DEFINITION OF LEARNING

According to Wenger (2000), a social definition of learning should take into account historical and social aspects of competence and the experience of each participant within the social system. Hence, learning is an interplay between social competence (which the social systems have established over time) and personal experience (which each participant has as a member of the specific social system where they are). When so defined, learning is a dynamic, two-way relationship between people and the social learning systems in which they participate. This two-way relationship can be seen as a convergence or a divergence between competence and experience. If convergence takes place, learning as deep expertise results; if divergence takes place, innovative learning is the type of learning that can occur.

There are two mechanisms to generate that dynamic between competence and experience: on the one hand, participation – to have or take a part or share with others in some activity – suggests action and connection and is one part of the dual process of making meaning; on the other hand, reification – the process of giving form to experiences by producing objects that congeal these experiences into "thingness", which reflect and shape those experiences (Wenger, 1998). Therefore, participation and reification are woven to make and negotiate meaning. This negotiation of meaning is the nature of the practice which participants experience in the social systems where they are.

In this interplay between participation and reification, which involves meaning making, and consequently creates practice, learning is seen as meaning making regarding competences and experiences. Therefore, a social definition of learning is that it is the interplay between competences and experiences that defines practice and is generated through mechanisms of participation and reification where meaning is created and negotiated.

Previous definitions of learning involve the idea of different ways of participating in the social learning systems where we are. These different ways of participating are called modes of belonging (Wenger, 1998 and 2000) or modes of identification (Wenger, 2010a):

•   Engagement: doing things together, producing artifacts. It is active involvement in the mutual process of negotiation of meaning. This generates direct experience in the social system where we are.

•   Imagination: creating images of the world and seeing connections through time and space by extrapolating from our own experience. This generates indirect experience to help us understand the social systems to which we belong.

•   Alignment: coordinating our energy and activities, perspectives, interpretations and contexts, so that actions have the effect we expect. This generates experience where power is required to negotiate that alignment.

Systemic Intervention with Communities of Practice

These three modes of belonging are analytical aspects of the dynamic of social learning systems formation. They coexist and every social learning system involves each to some degree and in some combination. They help in understanding the differences between social systems (i.e. community, nation, institution) because they describe different ways of participation and identification. Regarding the differences between social systems, Wenger (1998, 2000) proposes three main constitutive elements of social learning: communities of practice (CoPs), boundaries (and their combinations with other CoPs), and identity.

Communities of Practice

According to Wenger (2000), the basic building blocks of a social learning system are the communities of practice because they are the social 'containers' of the competences that make up such a system. According to Wenger et al. (2002):

"Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour: a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel techniques, a gathering of first-time managers helping each other cope".

Three characteristics are crucial in defining CoP:

- The domain: a CoP has an identity defined by a shared domain of interest. The domain is not necessarily something recognized as "expertise" outside the community. It is enough to be recognized as such within the community.

- The community: in pursuing their interest within their domain, members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other.

- The practice: the members of a CoP are practitioners. They develop a shared repertoire of resources (experiences, stories, tools, and ways of addressing recurring problems). This takes time and sustained interaction.

In the previous list of characteristics, it can be seen that CoP defines its competence by combining three elements that fit its regime of competence (Wenger, 1998, 2000, 2010a):

- Firstly, community members interact with one another (mutuality). Here, to be competent is to be able to engage with the community and be trusted as a partner in these interactions.

- Secondly, they develop an understanding of what their community is about (joint enterprise). Consequently, to be competent is to understand the enterprise well enough to be able to contribute to it.

- Thirdly, they produce communal resources – language, routines, artifacts, tools, etc. – (shared repertoire). Hence, to be competent is to have access to this repertoire and be able to use it appropriately.

Other researchers have extended CoP definitions by adding characteristics. Barab et al. (2003) define a CoP as "a persistent, sustained social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history, and experiences focused on common practice and /or mutual enterprise" (p. 238). Kling and Courtright (2003) and Hara (2009) present a similar definition but also include ritual occasions (and in general, supportive culture) as a characteristic of CoP. These definitions help in adding elements to previous ones: the overlapping of beliefs, values and knowledge, the emphasis on the sustained social network of individuals, and the inclusion of ritual and cultural aspects.

Boundary, landscape of practices, and constellations

According to Wenger (1998, 2000, 2010a), the value of communities and their boundaries are complementary in social learning systems. Here, boundaries are a result of different enterprises; different ways of engaging with one another; different repertoires; therefore, different practices. So, shared practice by its very nature creates boundaries. These boundaries are places of interest for communities to learn. Within the community, competence and experience converge; deep expertise is promoted by using a configuration of strong core practices. Between communities, competence and experience might diverge; innovative learning is promoted by using active boundary processes. Learning across boundaries implies that participants are able to recognize an experience of meaning in each other and to develop a shared sense of competence. These boundary processes require some intersection of interests, acknowledgement of differences and common ground, evaluation of those different competences between communities, and ways to engage with and translate between repertoires, so that experience and competence actually interact.

As CoP defines its competence by combining three elements, boundaries also have three elements that define the depth of the connections between practices (Wenger, 2000, 2010a; Akkermand and Bakker, 2011):

- Transparency: this defines whether the boundary processes give access to the meanings they have in various practices. In other words, whether the bridge created helps in understanding the logic of the practice.

- Coordination: this defines whether the boundary processes can be interpreted in different practices in a way that enables coordinated action. In other words, if the bridge created helps to deal with the practice locally, regardless differences in meaning of the practice.

- Negotiability: this defines whether the boundary processes provide a one-way or a two-way connection. In other words, if the bridge created helps to make room for multiple voices about the practices.

In addition to the concept of boundary and community as a constitutive element of social learning systems, further constellations of practices exist which are larger configurations of social learning systems that interconnect practices; therefore, CoP are subsets of those constellations. A constellation of practices consists of communities and boundaries that

define diversity in the way people engage with the practice and in the way bridges are constructed so as to enhance the ongoing production of local meaning as part of a constellation (Wenger, 1998).

Identity

So far in this paper, we have presented the social aspect of learning without considering how this aspect of learning affects participants of members of communities. The social aspect of learning does not mean a displacement of person; on the contrary, there is an emphasis on the person as a social participant. This person is a meaning-making entity for whom the social world is a resource for building an identity. Here, learning means becoming a certain person; it is to have a regime of competence as part of a community (Wenger, 2010a).

Identity is crucial to social learning systems for three reasons. Identities combine competence and experience, so they are the basis of the social dimension of learning. Identities play an essential role in dealing with boundaries (the way we manage our identities, opening, closing or suspending some of them, determines the way we deal with the boundaries). Identities are the container in which the rest of the social structure of learning systems can be realized (Wenger, 2000).

In talking about identity from a social perspective, Wenger (1998) points out that the concept of identity serves as a pivot between "the social" and "the individual", one that evolves through the negotiation of meanings of experiences of membership in communities. Wenger's approach is therefore neither individualistic nor abstractly institutional.

As CoP and boundary, identity also has three elements that define the qualities that constitute its ability to thrive in a community and the boundaries where it plays (Wenger, 2000):

- Connectedness: a strong identity involves deep connections with others through shared histories, experiences, reciprocity, and mutual commitments, among other things.

- Expansiveness: identity involves a wide range of experiences, and therefore multimembership.

- Effectiveness: identity involves being able to participate and act in the social world therefore, the extent to which the identity enables those aspects is a matter of effectiveness.

Previous qualities describe the part that participation, multimembership, and connections play in the construction of identity. In this regard, Wenger (1998, 2010) adds to these previous characteristics by explaining identities as:

- Negotiated experience: an identity is a layering of events of participation and reification by which we construct who we are through the negotiation of meaning.

This interplay of participation and reification takes place in our experience with the world.

- Community membership: an identity is a display of the different regimes of competence of the community of which we are members. We are therefore able to play a part in the relations of engagement; we develop a perspective regarding what the enterprise is; we create a personal set of repertoires within the context of the community to negotiate meaning. In summary, identity is a form of competence and defines what is familiar and what is unfamiliar.

- Nexus of multimembership: identity can be seen as our various forms of participation in different CoPs. This implies a process of reconciliation between the different aspects of competences among the communities in which we participate, which involves finding ways to make our various forms of membership coexist.

- A local/global interplay: identity can be seen as the process of connecting local community enterprise to broader constellations of enterprises.

- Learning trajectory: identity can be seen as a learning trajectory because this term suggests the temporal, ongoing, non-linear, and historical notion of identity. In the context of CoP, several types of trajectories can be described: peripheral trajectories (some trajectories never lead to full participation but provide a kind of access enough to be significant in the identity building process); inbound trajectories (they are peripheral at the initial moment, but have the intention of becoming insider trajectories in the future; so they are an investment in the identity building process); insider trajectories (once a full participant, the identity continues to be negotiated); boundary trajectories (some trajectories find their value in the boundaries that link communities); outbound trajectories (some trajectories lead out of a community). In summary, identities as learning trajectories are defined by where we have been and where we are going (see Figure 4).

- Participation – non-participation interplay. Identity can be seen as the significant forms of participation understood in the context of trajectories. Here, two cases of interaction between participation and non-participation are distinguished. Peripherality is where some degree of non-participation is necessary to enable a kind of participation that is less than full. Consequently, the participation aspect dominates and defines non-participation as an enabling factor of participation. This aspect of participation – non-participation interplay – helps to characterize a process called "legitimate peripheral participation" (Lave and Wenger, 1991) where being peripheral can help someone take part in the initial activities of the community without full participation, where this participation is legitimized by the community. Marginality is where a form of non-participation prevents full participation. Consequently, the non-participation aspect dominates and defines a restricted form of participation. These forms of participation – non- participation – can be described in terms of the trajectories presented previously (see Figure 4).

The Notion of Power in the CoP Theory of Learning

Taking into account the basic constitutive elements of social learning systems (identity – boundary – community – constellations), within a landscape of multiple practices, where learning is pursuing; the notion of power must be considered. Wenger (2010a) points out that Community of Practice is a learning theory, not a political theory. However, issues of power are inherent in social perspectives of learning. To Wenger (2010a), learning and power each imply the other. He states that CoP is based on the creation of practices and that this creation takes place in response to power, not as its outcome. He therefore describes power as constituted of two intertwined processes: the modulation of identification and the modulation of accountability.
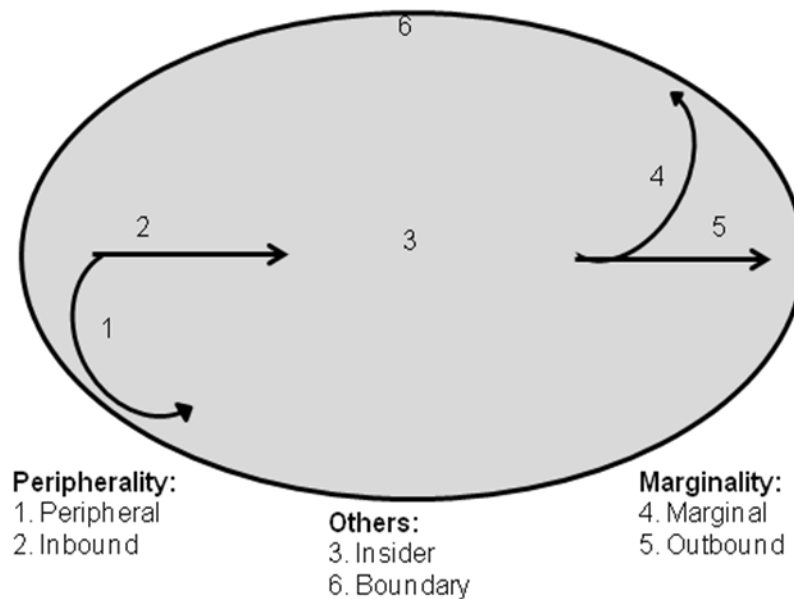

Figure 4: Relationships of participation – non-participation and types of learning trajectories (adapted from Wenger, 1998).

 The modulation of identification refers to the different degrees of identification that we give to different communities and their practices. This modulation makes one accountable to the community regimes of competence. This process implies that identity is shaped both inside-out and outside-in. As presented in the previous section, the modulation of identification can be the result of experiences of participation or non-participation on the one hand, and the result of an exchange between individual processes of engagement with communities and collective processes where others associate us to particular identities. This modulation process includes the modes of belonging previously described (engagement, imagination, and alignment) as people shape their identities through direct experience, images of the world that locate them in various contexts, and by following directions or negotiating plans to pursue effective practices.

The modulation of accountability is a complementary process of identification. Because there are three aspects of the regime of competence in the CoP (according to the three characteristics: mutuality, joint enterprise, and shared repertoire), this regime translates into a regime of accountability. Therefore, it implies accountability about the engagement with the community and the degree of trust generated as a partner, the understanding of the enterprise and the contribution to it, and the access obtained to this repertoire and the ability to use it appropriately. The modulation of accountability includes the responsibility of shaping the meanings that matters within the CoP.

The basic mechanism wherein these two types of modulation co-exist is the interplay of participation and reification; in other words, through acting with others in the community and producing practice. Here, the negotiation of meaning can be seen as the interdependent nature of modulation, where identification (the identity part) and accountability (the regime of competence of the CoP counterpart) define each other (Handley et al., 2006). For instance, to identify (or not) ourselves with a practice (neurosurgery) translates into a regime of accountability (to be competent as a neurosurgeon) – (or not be competent). Among all the landscape of practices and constellations, this process is repeated to negotiate the proper meaning for our identities and our communities.

Regarding Wenger's view of power, other researchers have pointed out that this vision can be extended. Fox (2000) critiques the focus on power attached to identity formation given by Wenger and presents an approach showing power as emergent and historical from the network of actions. Contu and Will (2003) suggest that power is a motivator for community members only if this power is perceived as a construct from outside the community (i.e. from other levels of social structures). Schwen and Hara (2003) and Keating (2005) propose the inclusion of motivation in the interplay of identification and accountability as an essential part of power from a CoP perspective. Thompson (2005) complements the motivation-power interplay by establishing the idea that if a power differential is created within the members of CoPs, then power is not a motivator but an obstacle. Hong and O (2009) point out that power is a by-product of identity therefore, if there are differences in perceptions about the identities and perceptions of power within CoPs and between them, learning cannot be achieved. All of these extensions of the vision of power have common ground: that motivation and values are aspects that should be considered within the interplay of identification and accountability.

A COP CONCEPTUAL FRAMEWORK FOR SYSTEMIC INTERVENTION

Figure 5 presents a summary of the CoP conceptual framework that relates learning from a social perspective with power and the constitutive elements of the social learning systems. CoP suits the systemic intervention perspective because it bases its proposed identity on an active and social learning perspective (Wenger, 1998, 2000, 2010, 2010a). Additionally, the CoP framework sees identity as a building process that takes into account inside-CoP as well as outside-CoP processes, where a learning trajectory within the community is essential (Wenger, 2000). Moreover, Wenger's framework presents the need to consider identity as a diverse, heterogeneous set of elements that involves roles, community membership, cultural aspects, multimembership, and different types of

participation/non-participation, within a learning perspective (Wenger, 1998). Furthermore, the CoP framework sees identity as a by-product of the interplay between the modulation of identification and the modulation of accountability (Wenger, 2010a). This interplay generates different means of identification and regimes of competence (Wenger, 2010a) on the one hand, and takes into account the tension between and within communities and the role of motivational aspects on the identity (Fox, 2000; Keating, 2005; Thompson, 2005; Hong and O, 2009) on the other hand. As a result of these aspects of the CoP framework, it is considered an important part of the creative design of methods in a systemic intervention approach.
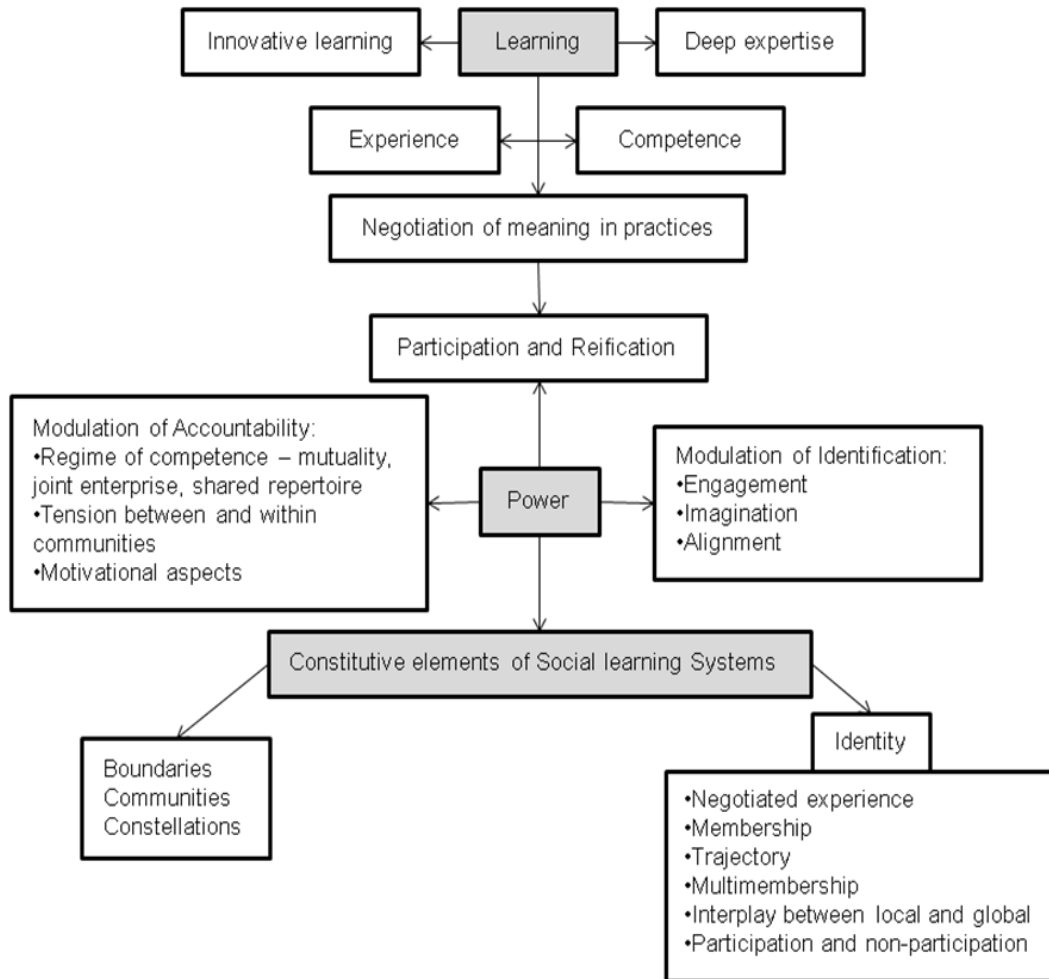

Figure 5: Social aspects of the learning process according to the CoP perspective.

Taking into account our previous summary of the CoP main features used in a systemic intervention, the following presents aspects to be considered within a systemic intervention methodological design in order to study and challenge identity issues (see Figure 5):

- The tension between competence and experience in evaluating evidences (or lack) of deep expertise or innovative learning: questioning whether the systemic intervention purpose will be related to deep expertise or innovative learning is important when challenging identity issues.

- Identity characteristics: identities can be explored taking into account their different features (negotiated experience, membership, trajectory, multimembership, interplay between local and global, participation and non-participation – and their legitimate peripheral participation aspect). Here, the vision of a learning trajectory that can take many forms including peripheral and marginal, contributes to the process of reflecting on boundary judgments. A legitimate peripheral participation concept is important to highlight different forms of participation that can be legitimate. Additionally, the idea of an identity defined by multimembership keeps in mind the different process of reconciliation between communities in which we participate, and its influence on boundary judgments.

- The modulation of identification: different levels of engagement, imagination and alignment should be studied to evaluate the identity and community building process, and the way these levels affect the process being studied.

- The modulation of accountability: elements that define competence in the different constitutive elements of the social learning systems should be explored to account for tensions between and within communities:

  - In the same way as identification, regime of competence (mutuality, shared repertoire and joint enterprise) account for learning processes. Here, the level of learning focus, social capital (sense of community), and self-awareness (about repertoire) can be evaluated and challenged.

  - In terms of boundary dimensions (Akkerman and Bakker, 2011) – transparency, coordination, and negotiability. These aspects can help to investigate participant identities in terms of the level of access and understanding of the problem situation, the level of adaptability in making decisions and applying them, and the level of accountability and commitment to exploring multiple perspectives.

  - In terms of identity dimensions – connectedness, expansiveness, and effectiveness. These aspects can help to investigate the depth of connections, the scope of identity features, and the level of proficiency for active participation.

The systemic intervention approach proposed by Midgley (2011) helps to represent the analytical process of this methodological design as a boundary judgement process supported by the CoP framework and other systems methodologies (e.g. Critical Systems Heuristics as in previous research such as Midgley, 2000) that takes into account agent identities (supported by the CoP framework) on the one hand, and the process (problematic phenomena) (supported by traditional methods from that field) on the other hand (see Figure 6). In Figure 6 (adapted from Midgley, 2011) the analysis of agent identities is seen to be affected by the process under analysis because, according to the CoP perspective, the processes of modulation (identification and accountability) affect each other. Agent identities are therefore also affected by particular views, competences,

experiences, and engagement in the studied process, which generate different identities. Agent identity also affects analysis of the process because those agents make decisions that bound it. As a result, the methodological design can be seen as interplay between agent identities and the process.

This methodological design of systemic intervention within the Communities of Practice framework also contributes to the analysis of CoPs by supporting a process of generating, analysing and promoting CoPs through reflection on the boundaries.

This systemic intervention (with CoP) can be seen as an ongoing process of reflection (analysing and challenging) about the boundaries, including participant identities and problem situations and the way they affect each other.
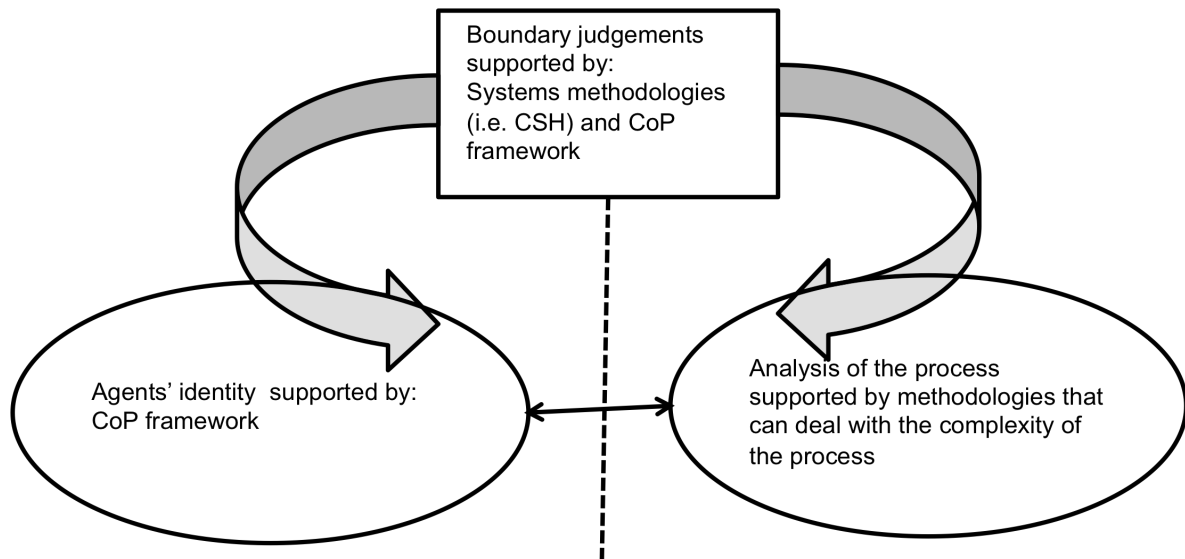

Figure 6: Systemic Intervention approach with CoP framework; adapted from Midgley (2011).

REFERENCES

Akkerman, S.F. Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, 81(2), 132-169.

Barab, S.A., MaKinster, J.G., Scheckler, R. (2003). Designing system dualities: characterizing a web-supported professional development community. *The Information Society*, 19(3), 237-256.

Bawden, R. (2003). Book reviews "Systemic intervention: Philosophy, methodology, and practice". *Systemic Practice and Action Research*, 16(5), 369-372.

Boyd, A., Geerling, T., Gregory, W.J., Kagan, C., Midgley, G., Murray, P., Walsh, M.P. (2007). Systemic evaluation: a participative, multi-method approach. *Journal of the Operational Research Society,* 58, 1306-1320.

Churchman, C.W. (1970). Operation research as a profession. *Management Science*, 17, B37-53.

Contu, A., Willmott, H. (2003). Re-embedding situatedness: the importance of power relations in learning theory. *Organization Science*, 14(3), 283-296.

Córdoba, J.R. (2002). *A critical systems thinking approach for the planning of information technology in the information society*. PhD thesis, University of Hull: Hull.

Córdoba, J.R. (2009). Critical reflection in planning information systems: A contribution from critical systems thinking. *Information Systems Journal*, 19(1), 123-147.

Córdoba, J.R., Midgley, G. (2006). Broadening the boundaries: an application of critical systems thinking to IS planning in Colombia. *Journal of the Operational Research Society*, 57, 1064-1080.

Flood, R.L., Jackson, M.C. (1991). *Creative problem solving: total systems intervention*. Wiley: Chichester.

Flood, R.L., Romm, N.R.A. (1996). Diversity management: theory in action. In Flood & Romm (Eds.), *Critical Systems Thinking: Current Research and Practice*. Plenum Press: New York.

Foote, J.L., Gregor, J.E., Hepi, M.C., Baker, V.E., Houston, D.J., Midgley, G. (2007). Systemic problem structuring applied to community involvement in water conservation. *Journal of the Operational Research Society*, 57: 645-654.

Fox, S. (2000). Communities of practice, Foucault and actor network theory. *Journal of Management Studies*. 37(6), 853-867.

Gregory, W. (1996). Dealing with diversity. In Flood & Room (Eds.). *Critical Systems Thinking: Current Research and Practice*. Plenum Press: New York.

Gregory, W. Romm, N. (1999). Facilitaton as fair intervention. *Centre for Systems Studies*, University of Hull, England.

Handley, K., Sturdy, A., Fincham, R., Clark, T. (2006). Within and beyond communities of practice: making sense of learning through participation, identity and practice. *Journal of Management Studies*, 43(3), 641-653.

Hara, N. (2009). Toward an understanding of communities of practice. In: Communities of practice: fostering peer-to-peer learning and informal knowledge sharing in the work place. *Information Science and Knowledge Management*, 13, Springer-Verlag, Berlin Heidelberg, 113-124.

Harwood, (2012). The management of change and the Viplan methodology in practice. *Journal of the Operational Research Society*, 63, 748-761.

Hong, J.F.L. and O, F.K.H. (2009). Conflicting identities and power between communities of practice: the case of IT outsourcing. *Management learning*, 40, 311-326.

Jackson, M.C. (2000). *Systems Approaches to Management*. Kluwer Academic Publishers: NJ, USA.

Keating, M.C. (2005). The person in the doing: negotiating the experience of self. In D. Barton and K. Tusting (Eds.), *Beyond communities of practice: language, power and social context*. Cambridge: Cambridge University Press, 105-138.

Kling R., Courtright, C. (2003). Group behavior and learning in electronic forums: A sociotechnical approach. *The Information Society*, 19(3), 221-235.

Lave, J., Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. New York: Cambridge University Press.

Midgley, G. (1996). What is this thing called CST? In Flood & Room (Eds.). *Critical Systems Thinking: Current research and practice*, Plenum Press: New York.

Midgley, G. (1997). Mixing methods: Developing Systemic Intervention. In J. Minger, A. Gill (Eds.). *Multimethodology: the theory and practice of combining management science methodologies*. John Wiley & Sons: West Sussex, England, 249-290.

Midgley, G. (2000). *Systemic intervention: Philosophy, methodology, and practice*. Kluwer Academic/Plenum Publishers: New York.

Midgley, G. (2011). Theoretical pluralism in systemic action research. *Systems Practice and Action Research*, 24, 1-15.

Midgley, G., Ahuriri-Driscoll, A., Baker, V., Foote, J., Hepi, M., Taimona, H., Rogers-Koroheke, M., Gregor, J., Gregory, W., Lange, M., Veth, J., Winstanley, A., Wood, D. (2007). Practitioner identity in systemic intervention: reflections on the promotion of environmental health through Maori community development. *Systems Research and Behavioral Science*, 24, 233-247.

Midgley, G., Ochoa-Arias, A.E. (2001). Unfolding a theory of systemic intervention. *Systemic practice and action research*, 14(5), 615-649.

Schwen, T. M., Hara, N. (2003). Community of practice: a metaphor for online design? *The Information Society*, 19(3), 257-270.

Taket, A., White, L. (2000). *Partnership & Participation: Decision-making in the multiagency setting*. John Wiley & Sons Ltd.

Thompson, M. (2005). Structural and epistemic parameters in communities of practice. *Organization Science*, 16, 151.

Ulrich, W. (1983). *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Berne: Haupt.

Vega-Romero, R. (2001). El papel de los investigadores y el uso de metodologías participativas en los procesos de formulación de políticas: una perspectiva posestructuralista. *Gerencia y Políticas de Salud*, 1(1), 103-114.

Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity*. New York: Cambridge University Press.

Wenger, E. (2000). Communities of practice and social learning systems. *Organization*, 7(2), 225-246.

Wenger, E. (2010) Conceptual tools for CoPs as social learning systems: boundaries, identity, trajectories and participation. In Blackmore, C. (Editor) *Social Learning Systems and communities of practice*. Springer Verlag and the Open University.

Wenger, E. (2010a) Communities of practice and social learning systems: the career of a concept. In Blackmore, C. (Editor) *Social Learning Systems and communities of practice*. Springer Verlag and the Open University.

Wenger, E., McDermott, R., Snyder, W.M. (2002). *Cultivating communities of practice: a guide to managing knowledge*. Harvard Business School Press, Boston, Massachusetts.

Yolles, M. (2001). Viable Boundary Critique. *Journal of Operational Research Society*, 51(1), 1-12.