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Acting with systems intelligence: integrating complex responsive processes with the systems perspective

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Short title:

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Abstract

The systems thinking literature assumes that the concept of a system is useful in management and organizational research. Ralph D. Stacey and his collaborators, however, have questioned this. They have presented the theory of complex responsive processes (CRP) as an alternative to systems thinking. We argue that systems thinking and the CRP perspective are complementary. The CRP illuminates many of the micro-behavioral, local interaction and creativity-related organizational phenomena while the systems perspective is useful for other purposes. CRP misses the mark in its criticism of systems thinking. The insights of CRP should and could be incorporated, not switched, with the systems perspective. The systems intelligence perspective, proposed by Hämäläinen and Saarinen, provides a framework to accomplish that. By integrating systems thinking and the CRP model we hope to provide a platform from which it is possible to appreciate the relative merits of the two apparently conflicting strands of thought.

Key words: systems thinking, complex responsive processes, systems intelligence, management, practice of OR, philosophy of OR

Short title: Acting with systems intelligence

Introduction

There has for long been a strong interest to promote systems thinking in organizations and managerial practice (see eg Emery and Trist, 1965; Jackson and Keys, 1984; Senge, 1990/2006; Senge *et al*, 1994; Jackson, 2000, 2003, 2006, 2009). Yet the actual implementation of systems thinking in organizational and other settings remains a challenge (Seligman, 2005; Ackoff, 2006; Senge, 2006; Hämäläinen and Saarinen 2008a). At one extreme, Ralph Stacey and his collaborators argue that there are fundamental intrinsic inadequacies in systems thinking about organizations and management. Calling for "a shift away from systems thinking about organizations" in favor of what they call "complex responsive processes" (CRP), Stacey and his collaborators dismiss the significance of the systems perspective (Stacey *et al*, 2000, p 10). This paper discusses the "radical alternative to systems thinking" of Stacey and his collaborators from the point of view of "systems intelligence" (SI) introduced by Saarinen and Hämäläinen (2004). We shall argue that SI provides a framework to integrate both the systems perspective criticized by Stacey et al as well as the insights of the complex responsive processes model which they advocate.

In a number of writings, Stacey and his collaborators have described systems thinking, along with "scientific management", as the "dominant discourse on the management of human organizations" (Stacey *et al*, 2000, p 56). According to them, the inadequacies of systems thinking for the purposes of management and the understanding of organizations are enormous. In particular, "systems thinking about organizations, while it may be very useful for understanding and controlling behavior of a repetitive kind, cannot deal with the questions of novelty" (Stacey *et al*, 2000, p 104). Not being able to account for "the emergence of true novelty" (ibid, p 187) and "new forms that have never existed before" (ibid, p 183), systems thinking should be replaced by a perspective that assigns a key role to "joint action" in the "living present" (ibid, p 187). This is what the complex responsive processes view aims to provide. (Stacey, 2001, 2003a, 2003b, 2005, 2007a, 2007b)

The criticism of Stacey and his co-writers has attracted some comments. In his insightful and highly informative book *Systems Thinking: Creative Holism for Managers* Michael C. Jackson bluntly states that Stacey's view does not present a radical challenge to systems thinking but, "simply follows a path already well trodden by system theorists." (Jackson, 2003, p 125). Unfortunately Jackson does not offer an analysis for this view in his book. Zhu (2007) concurs with Jackson. Offering a careful critical reading of Stacey and his collaborators, Zhu argues for "pragmatic sensibility" and for appreciating systems as "a dynamic web of the tensions, reciprocalities and transformations between various aspects of organizational life, each differentiated from and connected with, depending upon and affecting, each other" (Zhu, 2007, p 460). While we find ourselves in agreement with Zhu's analysis, what we offer below goes beyond what he suggests in incorporating the alternative approaches.

Systems intelligence

Systems intelligence was originally introduced by Saarinen and Hämäläinen (2004, see also Hämäläinen and Saarinen, 2006, 2007a, 2007b, 2008a, Luoma *et al*, 2008), as "intelligent behaviour in the context of complex systems involving interaction and feedback. A subject acting with Systems Intelligence engages successfully and productively with the holistic feedback mechanisms of her environment. She perceives herself as a part of a whole, the influence of the whole upon herself as well as her own influence upon the whole. By observing her own interdependence in the feedback intensive environment, she is able to act intelligently." Systems intelligence refers to personal skills and abilities in systems settings. Thus it relates to both the literature on intelligences including the theory of *multiple intelligences* (Gardner, 1983), *emotional intelligence* (Mayer *et al*, 2008) and social intelligence (Goleman, 2006) as well as to the *systems thinking* literature, especially to the works of C. West Churchman (Churchman, 1968, 1979) and Peter Senge (Senge, 1990/2006; Senge *et al*, 1994; Senge *et al*, 1999). SI looks for positive opportunities and personal improvement actions and thus relates to the literature on *positive psychology*

(Fredrickson, 2004), *positive organizational scholarship* (Cameron *et al*, 2003; Cameron, 2008) and *action research* (Reason and Bradbury, 2001).

"Intelligence" in this connection can be taken as an umbrella term that refers to mental abilities "that permit the recognition, learning, memory for, and capacity to reason about particular forms of information" (Mayer *et al*, 2008, p 509). As Neisser *et al* (1996, p 77) put it in an influential article, the concepts of intelligence attempt to understand and describe the phenomenon that people "differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought." In the context of systems intelligence, intelligence is approached as an ability that enables adaptive and productive action, and it might involve nonsymbolic, nonverbal, implicit, procedural and affective dimensions. With regard to dual-processing accounts of reasoning (Evans, 2008), systems intelligence takes into account the role of both "system 1" (implicit, holistic, perceptual, nonverbal, etc., reasoning) and "system 2" (explicit, analytic, reflective, language-related, etc., reasoning) in intelligent action.

The systems concept in systems intelligence is general. The definition with which Jackson starts his book is appropriate for our purposes: "a system is a complex whole the functioning of which depends on its parts and the interactions between those parts" (Jackson, 2003, p 3). In the systems engineering literature a system is described by its *state* and the *transformation* (input-output) model describing the change *process*. The state of a system includes all the relevant information needed to project the future behavior of the system. The system output depends on the inputs, the system state and the transformation process. This is an approach used extensively when analyzing and controlling physical systems. One can also use similar thinking in the systems intelligence perspective especially when dealing with settings of measurable elements. However, a system does not need to be something that we will find in the physical world as a concrete thing (Churchman, 1979; Checkland, 1985). A system can be conceived as a conceptual device that allows people to identify and relate themselves with their environment as a whole that involves interplay,

emergence or a state of becoming. Systems might be highly meaning-intensive, humanly tense and highly nonconceptual, such as the dyadic systems of an infant and her mother (Beebe *et al*, 2003). The system might also present itself as "the context", "the situation", or "the environment", amounting to an integrated whole on a time axis and in the process of becoming (cf. the discussion in Hämäläinen and Saarinen, 2007).

The systems intelligence perspective emphasizes that systems need not be physically real, or objectively measurable, and yet they can be intersubjectively shared. Although it might be difficult to articulate in what sense "a context" exists and what it involves, it is hard to envision human life without reference to contexts. When two children engage in an activity together at a sandbox, it might be difficult to identify the exact nature or boundaries or rules of the play. Similarly it might be difficult to identify the various subtleties of the dance of mutual gazes and gestures that an infant and her mother bi-directionally create (Beebe *et al*, 2003). As Hämäläinen and Saarinen put it, "Humans tune to their environment and to other subjects in a number of forms of awareness, mindfulness and connectivity only some of which can be reduced to the traditional cognitive categories of objective knowledge." (Hämäläinen and Saarinen, 2008a, p 822)

The key hypothesis of the systems intelligence perspective is that the holistic, emerging and co-created entity that the play at the sandbox gives rise to or the mutual and intertwined interplay at the cradle by the infant and the mother gives rise to is, indeed, a meaningful unit of analysis worth serious attention. It is assumed that the holistic entity deserves to be called "a system", and that the engagement in that system involves "intelligence".

This is a powerful hypothesis because it links together several strands of thought that are often kept separate. Firstly there is the systems discourse with its holistic emphasis, often calling for mathematical modeling. Secondly there is the discourse, often highly qualitative, metaphorical, phenomenological and philosophical that articulates the sensibilities of humans with respect to wholes they relate to (Saarinen, 2008). Thirdly there is the discourse

of intelligence which focuses upon the individual's capabilities and abilities to cope and to adopt.

Systems thinking and Stacey's critique

Stacey and his colleagues (Stacey *et al*, 2000; Stacey 2001, 2003a, 2003b, 2005, 2007a, 2007b), describe systems thinking as the dominant way of understanding organizations *as systems*. As they see it, this leads of theoretical misunderstandings and to frustrations on the part of practicing managers. Thinking of organizations as systems "immediately reifies and objectifies human action" (Stacey *et al*, 2000, p 58). They stress that "systems thinking cannot adequately explain how novelty arises in organizations or what the role of managers and leaders is in the emergence of such novelty".

It is important to take notice what exactly are the systems Stacey and his colleagues argue against. Stacey et al understand systems they as thing-like entities that can be identified from outside. The good news is that as thing-like objects systems can be designed and controlled. The bad news is that "rules, procedures and systems on their own are not what make an organization function" (Stacey *et al*, 2000, p 59). No matter how hard managers try, "the systems they design hardly ever work as expected" (ibid, p 59).

In systems thinking thus conceived, the manager's focus is on the organization as an object to be manipulated and controlled. This is useful when the intention is to "design regulatory procedures" (ibid, p 80) or when "it is a question of choosing the optimum alternative from a set that is already known" (ibid, p 81). Yet the emergence of the truly novel is pushed aside, along with the rich world of human subtleties and micro level interrelatings that are an inherent part of the actual reality of all organizational life.

This way of perceiving systems thinking, while polemically powerful, clearly misrepresents the field as a whole. The view that systems need not be 'out there' as objective entities, was held already by the seminal and eminent systems thinkers (eg Churchman 1968; Ackoff 1971). Systems are abstractions that are shaped by the values, beliefs, experience and

expectations of people. Different perspectives on what is the system at hand result in different actions. System boundaries are conceptual markers that define what and who is to be included in an analysis or intervention: what should be improved and how that improvement should be defined, what are the means to be considered, and who gets a say in determining these boundaries (eg, Churchman, 1968, 1979; Ulrich, 1994; Foote *et al*, 2007).

The drama that Stacey stages between systems thinking and CRP seems largely due to his presenting "the systems" as something that forces *an externalist* viewpoint upon them. According to such an interpretation, "any human thinking about the system is confined to an observer outside the system" (Stacey, 2001, p 270). Assuming such an externalist interpretation of systems, much of what Stacey and his colleagues have to say about "systems thinking" hits the mark. But there is no need to stick to such the Stacyan externalist interpretation of systems.

For one thing, the move to view systems as *conceptual tools* is already a step in the nonexternalist direction, and an approach that has been suggested by a number of authors (eg, Checkland, 1985).

For another thing, and even more significantly, it is quite feasible to imagine human intelligence as operating *in terms of systems* as opposed to being focused from the outside *upon* systems or being thinking *about* systems. Key findings of developmental psychology validate this point. Recall the "surprisingly abstract" and "systematic" nature of the infant cognitive endowment , as the eminent psychologist Jerome Bruner puts it (Bruner, 1983). Because of their "striking 'systematicity'", "infants enter the world of language and of culture with a readiness to find or invent systematic ways of dealing with social requirements and linguistic forms" (ibid, p 28). The systems intelligence perspective starts off by acknowledging the fact that infant systematicity relates to the nonconceptual, procedural, implicit and nonverbal (Beebe *et al*, 2003). In their urge to develop rigorous descriptive models, many systems thinkers seem to have bypassed the fact that there is no need to restrict the humans/systems relationship to objectivistic and positivistic

epistemologies. As Hämäläinen and Saarinen (2008a, p 821) put it, "human systems comprehension and action capabilities are an abundantly rich endowment". This stance calls for a broad and sensibilities-tuned interface between human agents and systems – one that does not assume an externalist stand. Looking at systems from the angle of an acting human subject embedded in a context, the systems intelligence perspective yields a liberal, broad and general interpretation of the notion of a "system". Hämäläinen and Saarinen (2007b, p 296) postulate that to "be human is to be systemic. The epistemic, rational, and objectifying dimensions of our cognitive acumen are only part of the human systems story." Thus, the systems intelligence perspective focuses upon "intelligence within systems as the context or a situated and unfolding life" (ibid). The externalist perspective upon systems, insisted upon by Stacey and his colleagues, is left behind once and for all.

The theory of complex responsive processes

In spite of its limitations as a criticism of systems thinking, the theory of complex responsive processes provides a multifaceted and illuminating perspective on organizational phenomena and management. It amounts to a process-oriented account of organizational life that emphasizes the local and interactional level as well as the social understanding of individuals (Stacey *et al*, 2000; Griffin, 2002; Stacey, 2001, 2003b, 2003a, 2005, 2007a, 2007b) The theory draws from George Herbert Mead's (1934/1962) social understanding of individuals and Norbert Elias's (2001) process sociology as well from complexity theory. According to the complex responsive processes view, organizational transformation as well as organizational phenomena that withstand time both emerge and re-emerge in people's local interactions. Organizational transformation amounts to changing people's behavior in local situations whereas routines, established power relations, legitimate conversational themes, irrespective of their apparent stability, are sustained only if they are expressed locally. In other words, transformation and reproduction, or change and stability, are both intrinsically characteristic of all human interaction.

Mead (1934), the founding father of social psychology, linked the emergence of the human mind with the evolution of social forms, i.e., groups and societies, etc. Mead argued that sophisticated cognitive capabilities could not have evolved in isolation from sophisticated forms of interaction, or wise versa. They have co-evolved. Mead conceptualized the co-evolution of the human mind and social interaction as the singular and plural of the same process, namely, the process of symbolic interaction.

Mead approached his theory in terms of *gesturing* and *responding*. A gesture is a symbol that points to a meaning which becomes apparent in the response that it calls forth. Together the gesture and its response constitute a social act and its meaning is constructed for both. Social acts form a conversation of gestures in which each gesture is a response to some previous gesture and so on. Gesturing takes forms such as facial expressions, postures, vocal gesticulations, language between human bodies. Rudimentary forms of knowing, or intuiting about the likely response of another human body, stems from the ability of humans to call forth similar responses in themselves as they call forth in each other. In other words, humans have a capacity to empathize or be attuned to other humans. Such a basic form of knowing, or consciousness, enables one to carry out a conversation of gestures in one's mind in order to reflect on what response a gesture might call forth. As people experience a history of gesturing and responding in which sometimes *similar situations evoke similar responses in a number of people*, people tend to "generalize" that experience. This "generalized other" is the basis for knowing how to act in groups, meetings, organizations and situations. The ability to attune to a "generalized other" facilitates more complex interaction patterns to emerge.

The theory of complex responsive processes employs the gesture-response model of Mead to devise a process view of organizations. In Griffin's words, "Complex responsive processes of relating are temporal processes of interaction between human bodies in the medium of symbols patterning themselves as themes in communicative interaction. These themes are continuously reproducing and potentially transforming themselves in the process of bodily interaction itself" (Griffin, 2002, p 169). From the complex responsive processes

perspective, organizational change, for example, does not result from operating on a leverage point of an externally manipulated system, but from the transformation of the communicative interaction between people, which is potentially amplified into a wider transformation in subsequent interaction.

An organization as a *whole*, in complex responsive processes terms, amounts to what Stacey (2005, 2007) calls an "imaginative construct". In Mead's terminology, organizations can be conceptualized as "generalized others", experienced as "population-wide" tendencies to judge or respond to similar situations in similar ways. Although Stacey and his collaborators criticize systems thinking of focusing upon wholes, wholes seem essential to the complex responsive processes perspective as well. People do experience wholes as real, entities such as families and family dinners, organizations, societies, situations and meetings. In our view, far from appearing as "imaginative constructs" entities such as "contexts" or "negotiations" or "organizations" or "the family reunion" very much form a whole that people can identify and operate with – indeed thrive upon.

Furthermore, people's identities are inseparable from such constructs such as "families" and "nations", because people identify themselves as parts of those groupings, as parents, as managers, as citizens, and so forth. Indeed it can be suggested that individuals are intrinsically motivated to belonging to groups. Bonding is a core human phenomenon and relationships create a space of possibilities and also of restraints. One cannot choose to do whatever one pleases because there is always a threat of *exclusion* and thereby losing the enabling 'benefits' of *inclusion*.

According to Stacey and his collaborators, choosing one act over another is influenced by the official and unofficial "ideologies" of an organization, that is, the values and norms that compel and constrain action. Values and norms are constantly negotiated in communicative interaction, in which those with more power, that is, those whose dependence on a relationship is relatively weaker to that of others in that relationship, have a bigger say in forming ideologies. Official ideologies, in turn, tend to sustain power figurations. Ideologies

emerge and are transformed in power based relationships of gesturing and responding between individuals. Thus, ideologies and power relations are sustained only insofar as they are particularized locally. In the presence of conflicting values and norms, people *choose*, to some degree, to act in conformity with particular compulsions and constraints while contradicting others. Choices that people make locally, then, give rise to small differences that are dissipated or amplified in subsequent interaction. In the latter case, changes may be diffused into population-wide transformation in communicative interaction, that is, into shifts in ideologies, power relations and what are imaginatively conceived as organizations *as wholes*.

The main thesis of Stacey and his collaborators is that one cannot shape organizations directly on the level of the organization as a whole. Organizational change cannot be designed, planned and implemented because too much is happening at the local level. At the same time change patterns may emerge unpredictably from the rich web of micro level interactions. A manager can make gestures that indicate her desires for the whole. Communicating such desires simply calls forth responses in others, in a number of local interactions. These local interactions will determine whether a desire for a whole, say, a new strategy of an organization, is put to practice. The analysis of Stacey and his colleagues is at its best in illuminating the role of the local interaction, the "living present", "joint action" and the possibilities for transformative change that ensue from the local level.

We welcome their insistence on the significance of the actual processes of *organizing* as opposed to the level of (externally identified) *organization* (Stacey *et al*, 2000, p 187): clearly an adequate account of management and organizational phenomena will need to address the process aspects of organizational life, along with the dimensions of the unknown and the unpredictable. This Stacey and his colleagues manage to do with considerable success.

Complex responsive processes and systems thinking

We have already observed that the criticism of "systems thinking" by Stacey and his colleagues presupposes an externalist interpretation of systems. Thus understood, it is possible to take the complex responsive processes perspective as an alternative to systems thinking. One could take, say, organizational cybernetics (Beer, 1984) and the theory of complex responsive processes and compare their ability to illuminate certain organizational phenomena.

An externalist interpretation of systems is not presupposed by the systems perspective, however. If one takes the term systems thinking to include the entire family of systems-based problem solving methodologies, it provides a host of approaches *to organizing* as opposed to theories *of* organizations. Many of these methodologies might well prove useful in a number of local processes and "joint actions" and as part of productive "complex responses processes". Given Stacey's strong emphasis on human freedom and spontaneous action, dimensions he sees lacking from the (externalist) systems thinking and essential for creativity and transformative change, it seems self-contradictory on his part to impose limitations on that freedom and spontaneity when they engage with systems methodologies.

More generally, from the practitioner's point of view, it is unfruitful to try to invalidate systems thinking based on an aprioristic and theoretical analysis of the systems concept. Yet this is what Stacey is up to. For a practitioner, the merits of systems thinking (and any thinking) are based on the benefits that thinking brings about to the actual processes at hand. Some authors see that quantitative and qualitative modeling is central to the process of systems thinking (eg, Sterman 2002; Jackson 2009), and surely there are contexts for application of many such models. How could a theoretician tell in advance that none of that is going to work?

Checkland (2000) argues that systems approaches, such as the soft systems methodology, can be useful as learning tools. He also points out that many of the benefits of systems thinking can come from applying systems thinking more intuitively, as an "internalized

model" (Checkland, 2000). How could any theoretician rule out such a possibility on the basis of a conceptual analysis of the concept of a "system"? For us, Stacey's obsession to play out "systems thinking" is quite misplaced and certainly does not serve the cause of enriching the portfolio of possible approaches and methodologies to be used in the kind of local processes that are the hallmark of the theory of complex responses processes in its emphasis on creating "the truly novel". From the practitioner's point of view, theoretical discourse regarding different approaches is secondary and should be secondary. The practitioners' actions are judged primarily on the basis of their consequences, and anything that benefits that process is potential valuable. The feasibility and desirability of the various modes of systems thinking for the purposes of application will depend on the circumstances as well as on the needs, values, skills and knowledge of the people involved (see, Ormerod, 2008).

There is also another aspect to systems thinking that Stacey *et al* seem to bypass in their criticism. Systems thinking can be taken to refer to the *thinking* process in which circumstances are organized systemically. In order for such thinking to take place, be meaningful and yield adaptive success, no entities called "systems" need to exist as part of the ultimate constitution of reality.

Yet it seems extremely hard to deny the significance for a manager such a systemic effort and such a use of systems. Actual managerial practice and discourse operates to a large extent in terms of *abstractions* and is also communicated in terms of such. For instance, the manager may use words such as "the customer", "care for the customer", "customer satisfaction", recognizing that she is not talking about any particular customer but operating with an "imaginative whole" (in Stacey's terms), or social object (in Mead's terms). The manager may want to communicate her vision of the most relevant aspect of the market dynamism currently at hand. Engaging in a Staceyan joint action on the local level and in the living present with her team members, the manager might well use abstractions as part of her interactional acumen, and operate in terms of systems when demonstrating her systemic thinking of (say) the market situation. People often do consider, to some extent at

least, the wider implications and contexts of their actions in their local interactions. The point is that processes of local interaction, which is the level of analysis that Stacey and his colleagues emphasize, include processes of systems thinking.

Processes of systems thinking take place day in and day out. This does not imply that anyone is adopting an externalist view of systems or assuming that systems are real thing-like entities. Regardless of the ontological status of systems, humans are able to think systematically, take into account dynamic phenomena such as delays and accumulation, think in terms of systems, and in general engage in pragmatically productive forms of *processes of systems thinking*. None of the suggestions of Stacey and his colleagues to abandon systems thinking needs to be endorsed. At the same time, everything on their constructive agenda can be maintained alongside with the systems perspective.

Organizations might not be systems in any ontological sense, and still it might prove useful to approach them systematically and with the aid of systems tools. The engine of change or improvement need not be a detached observer who manipulates the system from the outside. The complex responsive processes terminology might well be an accurate way of describing organizations on the local level. From the practitioner's point of view, however, the usefulness of any perspective can only be determined by the consequences that result when the perspective is put to action. In some cases it might be beneficial to pay attention to the micro-level interactions and their role in the practitioner's experiential reality. It might well be advantageous in some contexts to pay attention to one's "direct experience" – as Stacey *et al* (2000) suggest – while applying system dynamics modelling or soft systems methodology. We do not need to abandon the entire set of the tools of systems thinking, having been informed about the complex responsive processes perspective. A priori, the whole abandonment of systems thinking would lead to throwing away the baby with the bathwater.

From a pragmatic standpoint, systems thinking and complex responsive processes are entirely compatible. Even if we restrict systems thinking to the design and control of

objectively identifiable thing-like entities, a manager might operate with such thinking *at the same time* she is fully engaged on the local level and in a "living present" acutely mindful to the complex responses processes involved. Humans are quite capable to adopting several perspectives at the same time as they act, and this indeed is the mark of true mastery in many contexts of high expertise. Recall the words of Carlo D'Este in his acclaimed biography of General George S. Patton: "When Patton went to war there were always three campaigns in his head: the one he was fighting, the one he believed would follow – and the one beyond that." (D'Este, 1996, p 577)

From a theoretical standpoint, much of systems thinking and the CRP model are also compatible. For instance, there are no major differences between the theoretical premises of the soft systems methodology and the complex responsive processes perspective. Both approaches say that people cannot step outside organizations. Both acknowledge the essential role of beliefs and values in determining people's actions. Of course, there are also differences. The soft systems methodology emphasizes looking into what beliefs and values people might have. The complex responsive processes perspective is concerned with explaining how beliefs, values and joint actions emerge, become shared, and how they sustain particular power-figurations. All this is relevant for a system scientist. The complex responsive processes perspective complements the systems perspective, instead of being an opposing alternative to it.

Learnings from Stacey

To describe something as a system is to simplify the complexity of the real world. A certain amount of abstraction – simplification – is involved in identifying something as "a system". In such a process of abstracting away from one's "direct experience", using an expression from (Stacey *et al*, 2000), there are matters that tend to get omitted from consideration. Likewise, whenever you model something, you simplify the something. There is a sense in which "all models are wrong", as Sterman (2002) once put it.

Yet models are useful. Models of systems are useful. Maps are useful and concepts are useful and the concept of system is useful. But the map is not the territory, and life is more than any models, concepts or systems used to describe it. Thus the methodologies appropriate for the latter might fail us with the former. It is here where the writings and Stacey and his colleague come out at their contributive best. Consider the following characterization from Stacey (2006, 124):

> When organizations are written and talked about, attention is usually focused almost exclusively on emotionally detached, rational, step-by-step analysis and structured processes of planning and decision-making within monitoring forms of control. The emphasis is on predictability and the removal of uncertainty. This exclusive focus renders rationally invisible the unpredictable, emotional, responsive and spontaneous aspects of what people are doing in highly rational ways.

Stacey also suggests that rationality might involve spontaneous, responsive and emotionally-engaged aspects. These aspects are not only something to be lived with, but rather, a survival asset (eg, Stacey, 2001, p 63). These observations represent important insights in the complex responsive processes perspective and in its well-taken emphasis of the unpredictable, unknowable, emergent and change-generating nature of organizational life.

The systems intelligent perspective could not agree more. Just like Stacey's complex responsive processes perspective, the systems intelligence approach acknowledges the fact that people in organizations are often engaged with situations for which no models exist or which are known only partially. Already in infancy, systems intelligence involves nonverbal and implicit ways of relating to the system. More generally, the systems intelligence perspective stresses the local level (like Stacey), the level of day-to-day interaction, intentions, spontaneous, creative and rational action (like Stacey), the unpredictability of the future (like Stacey), emotions and emergent aspects of organizational change (like Stacey). It also stresses the systems concept (like systems thinking and unlike Stacey). It postulates

that the systemic endowment that Bruner and other developmental psychologists have studied assigns to humans capabilities and abilities that allow them to act intelligently in wholes they cannot describe, conceptualize or objectively model, and even when those wholes are in the process of becoming. As Hämäläinen and Saarinen (2008b, pp vii-ix) put it, the systems intelligence perspective maintains that "human beings have an instinctive capability to face their environment from the point of view of engagement. This fundamental capacity is action-oriented and adaptive, holistic, contextual and relational, and links the subject to her environment as an ongoing course of progression... the systems intelligence approach amounts to an extension of systems thinking... It recognizes the significance of the sensitivities-based, "soft", subjectivistic and first-person –related aspect of the human endowment as fundamental to the human systemic engagement."

The systems intelligence perspective thus shares a starting point with the complex responsive processes perspective: an integrative perspective on thought and action. Like CRP, the systems intelligence perspective focuses upon "the dynamic of daily interactions between people", "arguing that organizing is a human experience as the living present", that "there is a process of interaction, or relating, which is itself a process of intending, choosing and acting". (Stacey *et al*, 2000, p 187) "No one steps outside it" – the system one is intelligent with – "to arrange it, operate it or use it, for there is no simply objectified 'it'." (using the words of Stacey *et al*, 2000, p 187) Similarly, the systems intelligence perspective stresses what Stacey in the above quotation describes as the "emotional, responsive and spontaneous aspects" in what people are doing when acting "in *highly rational* ways".

From Explanation to Improvement

The complex responsive processes perspective is geared towards explaining organizational life in terms of micro-mechanisms that produce macro-level structures. In contrast, the systems intelligence perspective is primarily concerned with the logic of what makes things work in order to generate more of it.

The systems intelligence perspective takes the form of actual productive actions as the most important goal. It takes the discourse of improvement as primary, and leaves the discourse of methodology as secondary. This is in line with what managers do in their actual practice. Managers, we believe, subordinate knowledge and methodologies to results, not vice versa. This is a common conclusion from studies of the practice of managers also reflected in the quote from a recent paper by Eden *et al* (2009, p 10): "Managers are rarely concerned with theoretical integration. With good reason, they are more interested in what works and what helps them." Effective management action is likely to involve processes of systems thinking. At the same time, management also involves spontaneous, improvisational, and emotionally-driven aspects.

It is not known what particular processes of systems thinking occupy a manager's "thought-action repertoires" (to borrow Fredrickson's, 2004, apt expression). Neither is there much empirical literature on the practical merits of particular forms of systems thinking as exercised by managers The systems intelligence approach encourages making a liberal and context-tuned perspective when viewing the prospects of particular forms of systems thinking for particular purposes. It is very much in line with the emphasis of "pragmatic sensibility" argued for forcefully by Zhu in his insightful evaluation of Stacey (Zhu, 2007).

It is interesting to look into the philosophy of using models in the wider field of OR in general. Today it is well acknowledged that analytical modeling is used to support the problem owner and not to replace him or her. Successful OR interventions require social skills and other forms of know-how in addition to the necessary modeling and problem solving skills (Ravindran *et al*, 1976; Mingers and Brocklesby, 1997; French *et al*, 2009; von Winterfeldt and Fasolo, 2009). The choice of methods is to be done so that the method fits the problem situation and not vice versa. The nature of the problem situation and the concerns of the stakeholders need to be taken into account as well (Jackson and Keys, 1984; Mingers and Brocklesby, 1997; Ormerod, 1997; Midgley, 2000; von Winterfeldt and Fasolo, 2009).

A good OR practitioner is systems intelligent to the extent she is able to successfully combine different methodological and process skills in a given situation in order to bring about improvement in the system of problem solving involving him or her, the problem owner and the stakeholders. From the point of view of a systems intelligent OR practitioner, it is also important to acknowledge that the future consequences of the intervention might as well turn out to be adverse (see eg Churchman, 1979). Thus, the systems intelligence approach does not primarily seek the models for successful (intelligent) OR interventions, but rather constantly stressing the significance of asking questions such as:

- What would it require to improve upon the given system (situation, context, environment, set-up, configuration, future)?
- Is the system considered and identified really the one we wish to improve?

In the systems intelligence perspective one does not see a point in the "complex responsive processes vs. systems thinking" debate. The interesting questions are: How might a practitioner benefit from looking at his or her practice from a complex responsive processes perspective? What improvements could the practitioner bring about by applying systems thinking? Would it be useful to include both approaches?

Conclusion

We have proposed that an integrative approach, called "systems intelligence," shows the way forward. There is no need for the debate. One should ask what can one gain from including complex responsive processes view when applying systems thinking. The CRP perspective is useful as it draws attention to and legitimizes conversations about the improvisational and spontaneous behaviors of people in organizations and other settings, and their role in the construction of the practitioners' experiential reality. Perhaps, through adopting the CRP terminology, the practitioner is in a better position to understand the power-based and value-laden social interactions that he or she has to deal with in her professional practice. At the same time, the concepts and tools of systems thinking allow the practitioner to recognize other aspects of the situation. For instance, with the systems

thinking terminology and mindset, the practitioner might be better equipped to articulate a concern for the long-term consequences of a plan, identify the effects of market dynamism on the growth-prospects of a new product, conceptualize a change in the strategy of a competitor, or figure out the significance of a "disruptive technology" (Christensen, 1997). When a business hit "a strategic inflection point" where "its fundamentals are about to change" (Grove, 1996, p 3), the manager's systemic thinking skills abilities will be in high need and her systems intelligence meets its acid test.

A systems intelligent practitioner tries to find improvements in the circumstances she faces, using whatever conceptual frameworks and means she might have available. We do not provide a prescription for systems intelligent behavior nor do we seek final word on the relative merits of CRP or systems thinking. Rather, we suggest that it is *intelligent* to approach one's environment and one's context in terms of "systems" and to move within those systems flexibly and with multiple perspectives, methodologies, epistemologies and sensibilities. The process can – but need not – lead to applying some systems thinking tools and becoming mindful of the existence of some social and mental processes.

The perspective of systems intelligence emphasizes what we believe to be the focal point of management: the search for actions that lead to results. In the context of management research, we believe, an instrumentalist and pragmatic perspective is essential. In many cases it makes little managerial sense to discard a theory, methodology or a technique based on some theoretical critique. It is the consequences of applying the particular perspective that matters. Such an instrumentalist perspective should always stay in the focus of the descriptive and theoretical interests of management research. In particular, we see it as being central to the field of operational research. At the same time, some key concepts might well serve both pragmatic as well as the theoretical purposes. For that to happen, the concept will have to be intuitive enough and at the same time forceful enough in order to guide the actions both within the research community as well as among practitioners. In this paper we hope to have given some reasons for our conviction that systems intelligence is such a concept.

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